

# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

## OFFICE OF DESIGN POLICY & SUPPORT INTERDEPARTMENTAL CORRESPONDENCE

**FILE** P.I. # 0013368 **OFFICE** Design Policy & Support  
Cherokee County  
GDOT District 6 - Cartersville **DATE** 11/04/2016  
Intersection improvement - SR140 @ CR 765/East  
Cherokee Drive

**FROM**  for Brent Story, State Design Policy Engineer

**TO** SEE DISTRIBUTION

**SUBJECT** APPROVED CONCEPT REPORT

Attached is the approved Concept Report for the above subject project.

Attachment

**DISTRIBUTION:**

Hiral Patel, Director of Engineering  
Joe Carpenter, Director of P3/Program Delivery  
Albert Shelby, State Program Delivery Engineer  
Darryl VanMeter, State Innovative Delivery Engineer  
Bobby Hilliard, Program Control Administrator  
Cindy VanDyke, State Transportation Planning Administrator  
Eric Duff, State Environmental Administrator  
Bill DuVall, State Bridge Engineer  
Andrew Heath, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Lisa Myers, State Project Review Engineer  
Monica Flournoy, State Materials and Testing Administrator  
Patrick Allen, State Utilities Engineer  
Paul Tanner, State Transportation Data Administrator  
Attn: Systems & Classification Branch  
Richard Cobb, Statewide Location Bureau Chief  
Ed David Adams, State Safety Program Manager  
DeWayne Comer, District Engineer  
David Acree, District Preconstruction Engineer  
Jun Birnkammer, District Utilities Engineer  
Cedric Clark, Project Manager  
BOARD MEMBER - 11th Congressional District

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
LIMITED SCOPE PROJECT CONCEPT REPORT**

Project Type: <u>Intersection Improvement</u>	P.I. Number: <u>0013368</u>	
GDOT District: <u>6</u>	County: <u>Cherokee</u>	
Federal Route Number: <u>N/A</u>	State Route Number: <u>140</u>	
Project Number: <u>N/A</u>		

**Project Description:** Project 0013368 proposes to improve the intersection of SR 140/Hickory Flat Highway at CR 765/East Cherokee Drive in Cherokee County by improving stopping sight distances, adding right-turn lanes, extending left-turn lanes, modifying driveway accesses, and upgrading the traffic signal.

**Submitted for approval:**

Glenn Bowman, PE, Amec Foster Wheeler; Peng Zhang, PE, Crecent View Eng.  
Consultant Designer & Firm

8-25-2016  
Date

Geoff Morton, P.E., Cherokee County Public Works Agency Director  
Local Government Sponsor

8-25-2016  
Date

Albert Shelby  
State Program Delivery Engineer

9/7/16  
Date

Cedric D. Clark  
GDOT Project Manager

8/29/16  
Date

**Recommendation for approval:**

Eric Duff \*  
State Environmental Administrator

9-12-2016  
Date

☐ Environmental Surveys for history and ecology are complete.

Christopher Raymond, P.E \*

9-20-2016

**For** State Traffic Engineer

Date

☒ MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).

☐ Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

Cynthia L. VanDyke \*

9-13-2016

State Transportation Planning Administrator

Date

**Approval:**

Concur:

Michael Butler  
GDOT Director of Engineering

10/25/16  
Date

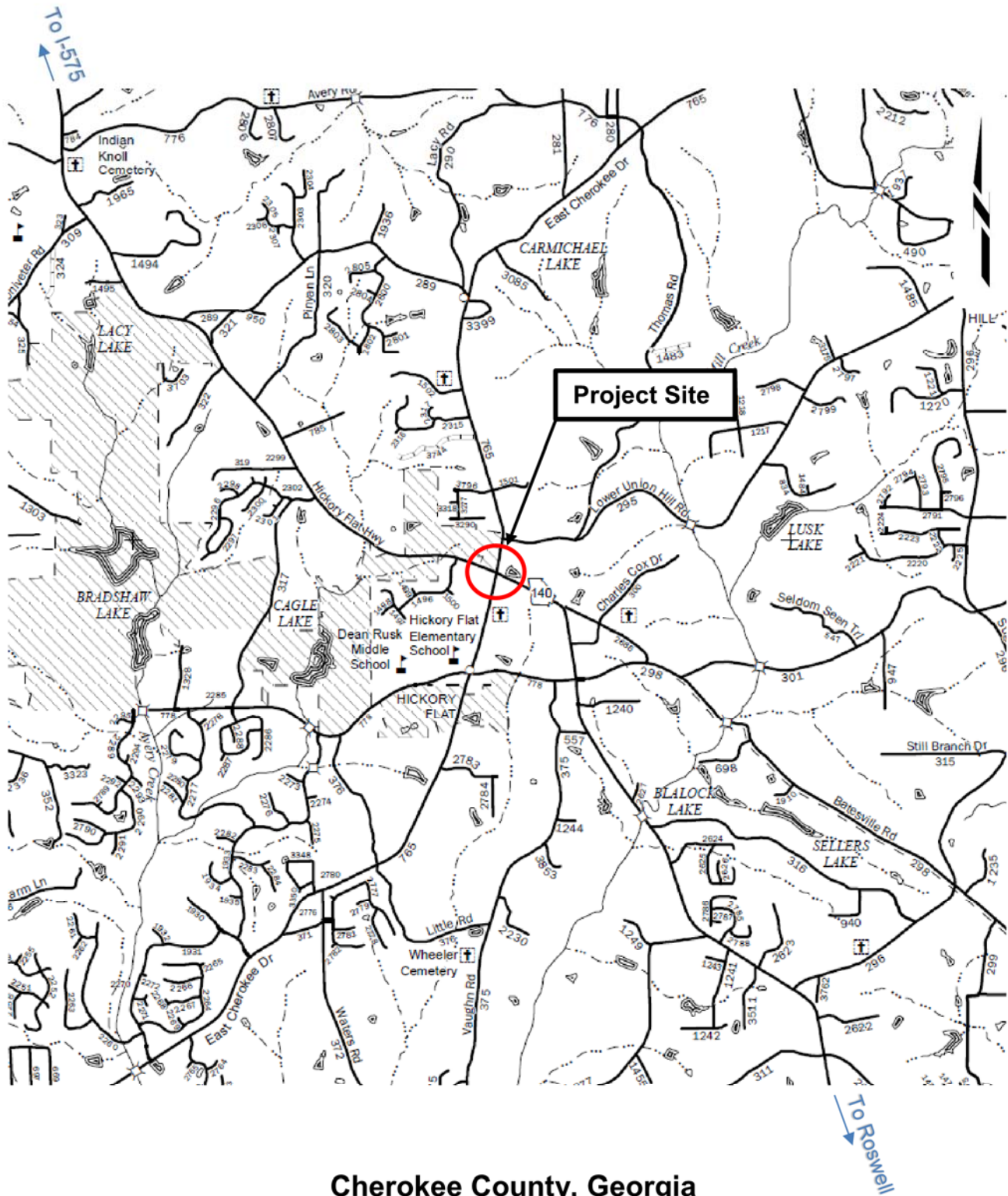
Approve:

Margaret B. Puckler  
GDOT Chief Engineer

10/27/16  
Date

\* - Recommendation on file

## PROJECT LOCATION MAP



County: Cherokee

## PLANNING & BACKGROUND DATA

**Project Justification Statement:** The intersection of SR 140 and East Cherokee Drive, located in the central portion of Cherokee County, has experienced tremendous commercial growth on all four of its quadrants in recent years. SR 140 is currently a two-lane east-west roadway with a left-turn lane for the eastbound approach and left and right-turn lanes for the westbound approach. East Cherokee Drive is a two-lane north-south roadway with left-turn lanes for both the northbound and southbound approaches. These roadways serve as primary routes for residents living on the east side of Cherokee County. Recent residential and commercial development along the corridor has increased traffic through the intersection.

The Georgia Department of Transportation has long range plans to four-lane SR 140 in this area. However, due to funding constraints, that project is more than 10 years away. Due to increased traffic volumes, conflicting turning movements, and commercial and residential development, traffic continues to grow in this area with the intersection of SR 140 and East Cherokee Drive creating a bottleneck and experiencing operational deficiencies. The existing volumes show an intersection level of service (LOS) of E for both the AM and PM peak periods. Traffic projections for the future design year of 2028 show a LOS of F for both the AM and PM peak periods if no improvements are made.

Improvements are needed in and around the intersection to improve sight distance, increase capacity, and provide access and operational improvements to the intersection in general.

*PJS prepared by the GDOT Office of Traffic Operations.*

**Existing conditions:** The intersection of SR 140/East Cherokee Drive is located partially within the City of Holly Springs and partially within unincorporated Cherokee County. Both SR 140 and East Cherokee Drive are generally two-lane, undivided roadways with rural shoulders and posted speed limits of 45 MPH; however, there is limited stopping sight distance through the intersection on SR 140. Approaching the intersection, eastbound SR 140 consists of a separate left-turn lane and a shared thru-right-turn lane, and westbound SR 140 consists of a separate left-turn lane, a thru lane, and a separate right-turn lane. The northbound and southbound East Cherokee Drive approaches consist of a separate left-turn lane and a shared thru-right-turn lane. Intermittent curb and gutter shoulders exist around the intersection in all but the southwest quadrant. Some sidewalk is present in the northwest and southeast quadrants of the intersection, and overhead and underground utilities are present within the project area. Several commercial driveways are also located within the functional boundary of the intersection.

### Other projects in the area:

**MPO:** Atlanta Regional Commission (ARC)

**TIP #:** N/A

**Congressional District(s):** 11

**Federal Oversight:** ☐PoDI ☒Exempt ☐State Funded ☐Other

**Projected Traffic:** AADT 24 HR T: 1.5%

Current Year (2016): 17,520 Open Year (2018): 18,040 Design Year (2028): 21,580

Traffic Projections Performed by: A&R Engineering, Inc.

Date approved by the GDOT Office of Planning: Approval is pending

**Functional Classification (Mainline):** Urban Minor Arterial Street

### Complete Streets - Bicycle, Pedestrian, and/or Transit Standards Warrants:

Warrants met: ☐None ☐Bicycle ☒Pedestrian ☐Transit

### Pavement Evaluation and Recommendations

Initial Pavement Evaluation Summary Report Required? ☒No ☐Yes

County: Cherokee

Initial Pavement Type Selection Report Required?

☒ No☐ Yes

Feasible Pavement Alternatives:

☒ HMA☐ PCC☐ HMA & PCC

## DESIGN AND STRUCTURAL

**Description of Proposed Project:** The project proposes to improve the intersection of SR 140 at East Cherokee Drive by: improving the stopping sight distance (profile) along SR 140 to meet the proposed speed design; adding separate right-turn lanes on the eastbound, northbound, and southbound approaches; lengthening the westbound left-turn lane/storage; reconfiguring a commercial driveway to right-in, right-out only in the northeast quadrant; adding/reconstructing sidewalk and curb and gutter on both shoulders on all approaches; and upgrading the traffic signal to include additional signal heads and flashing yellow left-turn phases.

**Major Structures:** N/A

**Mainline Design Features:** SR 140/Hickory Flat Highway

Feature	Existing	Standard*/ Guideline	Proposed
<b>Typical Section</b>			
- Number of Lanes	2		2
- Lane Width(s)*	12'	12'	12'
- Median Width & Type*	12' flush	14' flush	12' flush
- Outside Shoulder Width*rural shldr or Border Area Width*urban shldr	Mixed 10' rural & 10' urban	10' urban	10' urban
- Outside Shoulder Slope*	4% and 6%	4%	4%
- Inside Shoulder Width*	N/A	N/A	N/A
- Sidewalks*	5'	5'	5'
- Auxiliary Lanes	N/A		N/A
- Bike Lanes*	N/A	N/A	N/A
Posted Speed	45 mph		45 mph
<b>Design Speed*</b>	<b>45 mph</b>	<b>45 mph</b>	<b>45 mph</b>
<b>Min Horizontal Curve Radius*</b>	<b>5930</b>	<b>711</b>	<b>5930</b>
<b>Maximum Superelevation Rate*</b>	<b>4%</b>	<b>4%</b>	<b>4%</b>
<b>Maximum Grade*</b>	<b>5.8%</b>	<b>7%</b>	<b>5%</b>
Access Control	By permit		By permit
Design Vehicle	WB-67		WB-67
Pavement Type	HMA		HMA

**Side Road Design Features:** CR 765/East Cherokee Drive

Feature	Existing	Standard*/ Guideline	Proposed
<b>Typical Section</b>			
- Number of Lanes	2		2
- Lane Width(s)*	12'	12'	12'
- Median Width & Type*	12' flush	14' flush	12' flush
- Outside Shoulder Width*rural shldr or Border Area Width*urban shldr	10' urban	10' urban	10' urban

County: Cherokee

- Outside Shoulder Slope*	4%	4%	4%
- Inside Shoulder Width*	N/A	N/A	N/A
- Sidewalks*	5'	5'	5'
- Auxiliary Lanes	N/A		N/A
- Bike Lanes*	N/A	N/A	N/A
Posted Speed	45 mph		45 mph
Design Speed*	45 mph	40 mph	45 mph
Min Horizontal Curve Radius*	5930'	533'	5930'
Maximum Superelevation Rate*	4%	4%	4%
Maximum Grade*	3.2%	9%	3.2%
Access Control	By permit		By permit
Design Vehicle	WB-67		WB-67
Pavement Type	HMA		HMA

\*According to current GDOT design policy if applicable

**Major Interchanges/Intersections:** SR 140 at East Cherokee Drive**Lighting required:** ☒ No ☐ Yes**Off-site Detours Anticipated:** ☒ No ☐ Undetermined ☐ Yes**Transportation Management Plan [TMP] Required:** ☐ No ☒ YesIf Yes: Project classified as: ☒ Non-SignificantTMP Components Anticipated: ☒ TTC**Design Exceptions to FHWA/AASHTO controlling criteria anticipated:** None anticipated.**Design Variances to GDOT Standard Criteria anticipated:** None anticipated.

## UTILITY AND PROPERTY

**Railroad Involvement:** N/A**Utility Involvements:** Georgia Power Company-Electric; Cherokee County-Water & Sewer; Windstream-Telephone; AGL Resources-Gas; Comcast-Cable TV; Sunesys-Schools**SUE Required:** ☒ No ☐ Yes**Public Interest Determination Policy and Procedure recommended?** ☒ No ☐ Yes

**Right-of-Way:** Existing width: 75 ft. Proposed width: 100 ft.  
 Required Right-of-Way anticipated: ☐ None ☒ Yes ☐ Undetermined  
 Easements anticipated: ☐ None ☐ Temporary ☒ Permanent ☒ Utility ☐ Other

Anticipated total number of impacted parcels: 19  
 Displacements anticipated: Businesses: 0  
 Residences: 0  
 Other:             
 Total Displacements: 0

**Impacts to USACE property anticipated?** ☒ No ☐ Yes ☐ Undetermined

County: Cherokee

## CONTEXT SENSITIVE SOLUTIONS

**Issues of Concern:** Commercial area with limited availability of sidewalks.

**Context Sensitive Solutions Proposed:** Sidewalks are planned on both sides of all roadway approaches.

## ENVIRONMENTAL AND PERMITS

### Anticipated Environmental Document:

**NEPA:** ☐ PCE ☒ CE ☐ EA-FONSI

**GEPA\*:** ☐ Type A ☐ Type B ☐ None

\*A GEPA document must be prepared only for state funded projects where the project cost meets or exceeds \$100 million. Environmental surveys are required for all state funded projects regardless of project cost.

### Level of Environmental Analysis: (check one)

- ☐ The environmental considerations noted below are based on preliminary desktop or screening level environmental analysis and are subject to revision after the completion of resource identification, delineation, and agency concurrence.
- ☒ The environmental considerations noted below are based on the completion of resource identification, delineation, and agency concurrence.

**MS4 Compliance – Is the project located in an MS4 area?** ☐ No ☒ Yes

**Is Protected Species water quality mitigation anticipated?** ☒ No ☐ Yes

**Environmental Permits, Variances, Commitments, and Coordination anticipated:** No permits or variances are anticipated. Informal Section 7 coordination for the Northern long-eared bat and the Indiana bat will be required.

### Air Quality:

Is the project located in a PM 2.5 Non-attainment area? ☐ No ☒ Yes

Is the project located in an Ozone Non-attainment area? ☐ No ☒ Yes

Carbon Monoxide hotspot analysis: ☒ Required ☐ Not Required ☐ TBD

**NEPA/GEPA Comments & Information:** Potential habitat for the following federally threatened and endangered species was identified: Etowah darter (*Etheostoma etowahae*), Cherokee darter (*Etheostoma scotti*), finlined pocketbook (*Lampsilis altilis*), Alabama moccasinshell (*Medionidus acutissimus*), gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), Indiana bat (*Myotis sodalis*), amber darter (*Percina antesella*), southern clubshell (*Pleurobema decisum*), southern pigtoe (*Pleurobema georgianum*), triangular kidneyshell (*Ptychobranhus foremanianus*), and dwarf sumac (*Rhus michauxii*). The proposed project is recommended to have no effect on etowah darter, Cherokee darter, finlined pocketbook, Alabama moccasinshell, gray bat, amber darter, southern clubshell, southern pigtoe, triangular kidneyshell, and dwarf sumac. It is recommended that the proposed project may affect, but is not likely to adversely affect the northern long-eared bat and Indiana bat.

One historic property, the Quarles Store, is located in the southwest quadrant of the intersection. A No Adverse Effect has been received from the State Historic Preservation Officer.

## COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

**Project Meetings:** June 27, 2016, project team meeting. See attached meeting notes.

Project Activity	Party Responsible for Performing Task(s)
Concept Development	Cherokee County/Amec Foster Wheeler
Design	Cherokee County/Amec Foster Wheeler

County: Cherokee

Right-of-Way Acquisition	Cherokee County
Utility Coordination (Preconstruction)	Cherokee County
Utility Relocation (Construction)	Utility Owners
Letting to Contract	Cherokee County
Construction Supervision	Cherokee County
Providing Material Pits	Contractor
Providing Detours	Cherokee County
Environmental Studies, Documents, & Permits	Cherokee County/Moreland Altobelli Associates
Environmental Mitigation	Cherokee County/Moreland Altobelli Associates
Construction Inspection & Materials Testing	Cherokee County

**Other coordination to date:** None**Project Cost Estimate and Funding Responsibilities:**

	PE Activities		ROW	Reimbursable Utilities	CST*	Total Cost
	PE Funding	Section 404 Mitigation				
Funded By	Cherokee County	Cherokee County	Cherokee County	Cherokee County	GDOT /Cherokee County**	
\$ Amount	\$225,124	\$0	\$935,685	\$286,915	\$2,825,000	\$4,273,000
Date of Estimate	2011-2016	07/27/2016	09/30/2016	09/30/2016	10/14/2016	

\*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Cost Adjustment.

\*\*Cherokee County to fund all costs over \$1,000,000.

**ALTERNATIVES DISCUSSION**

**Preferred Alternative:** The project proposes to improve the intersection of SR 140 at East Cherokee Drive by: improving the stopping sight distance (profile) along SR 140 to meet the proposed speed design; adding separate right-turn lanes on the eastbound, northbound, and southbound approaches; lengthening the westbound left-turn lane/storage; reconfiguring a commercial driveway to right-in, right-out only in the northeast quadrant; adding/reconstructing sidewalk and curb and gutter to both shoulders on all approaches; and upgrading the traffic signal to include additional signal heads and flashing yellow left-turn phases. According to the results documented in the attached Traffic Report, the LOS of this alternative is expected to be D in the AM peak period and E in the PM peak period for the 2028 design year.

<b>Estimated Property Impacts:</b>	19	<b>Estimated Total Cost:</b>	\$4,273,000
<b>Estimated ROW Cost:</b>	\$935,685	<b>Estimated CST Time:</b>	18 months
<b>Rationale:</b> Most cost effective alternative which minimizes environmental impacts and meets the need and purpose of the project.			

**No-Build Alternative:** No action would be taken with this alternative and the LOS of this alternative is expected to be F in both the AM and PM peak periods.

<b>Estimated Property Impacts:</b>	0	<b>Estimated Total Cost:</b>	\$0
<b>Estimated ROW Cost:</b>	\$0	<b>Estimated CST Time:</b>	None
<b>Rationale:</b> Would not meet the need and purpose of the project.			

**Additional Comments/ Information:**

**LIST OF ATTACHMENTS/SUPPORTING DATA**

1. Concept Layout
2. Typical Sections
3. Construction cost estimate details dated 10/14/2016
4. Right of Way cost estimate letter from Cherokee County and estimate details dated 9/30/2016
5. Utility cost estimate letter from Cherokee County
6. Traffic Evaluation Report including crash summaries, traffic diagrams and projections, and capacity analysis summary dated 10/3/2016
7. Meeting Minutes – June 27, 2016 Project Team Meeting
8. Preliminary Pavement Design
9. Proposed Agreement – Utility Agreement between Cherokee County and Georgia Power Company





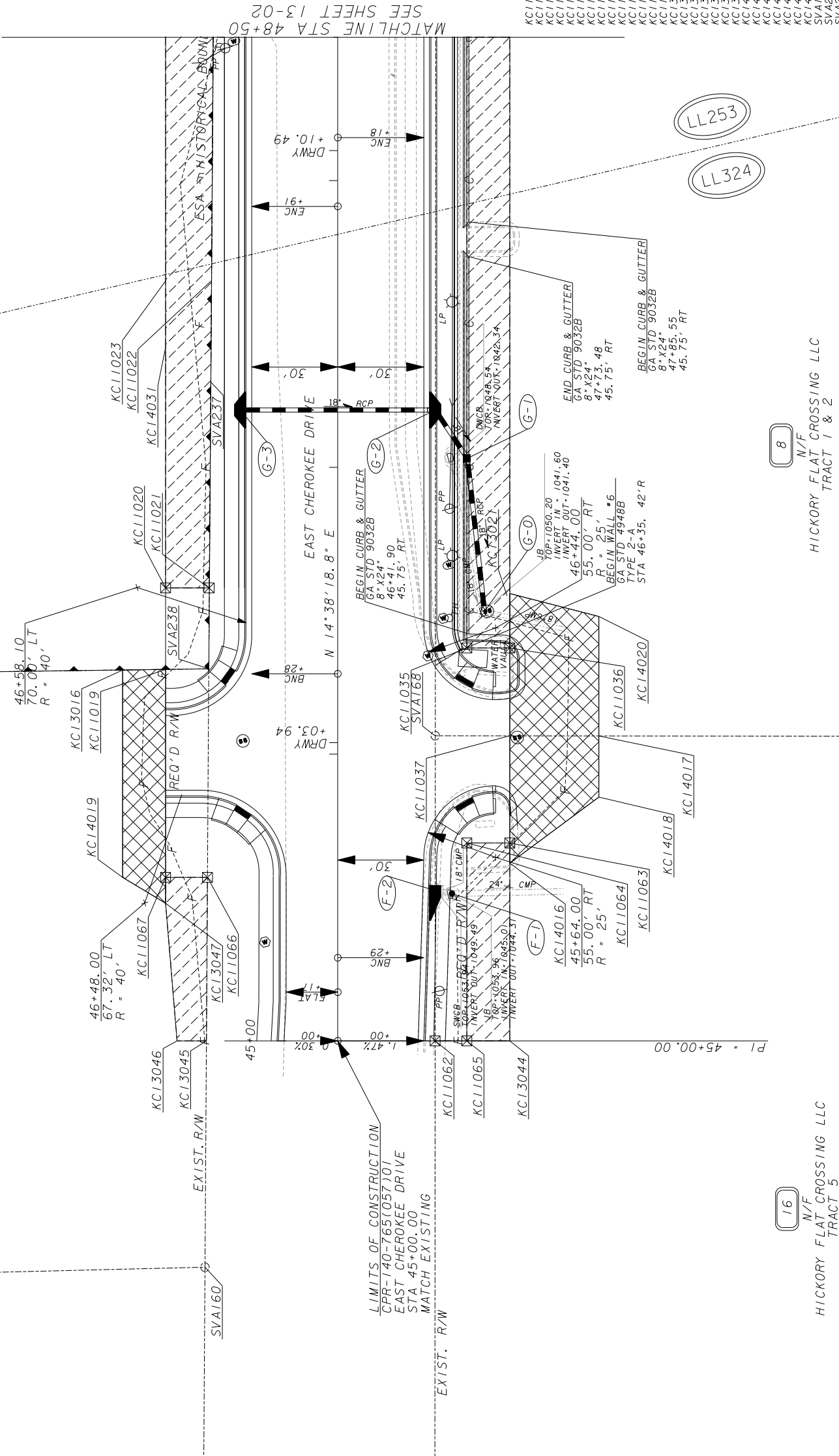






6  
N/F  
ANNETTE P QUARLES  
&  
WAYNE F QUARLES

7  
N/F  
ANNETTE P QUARLES  
&  
WAYNE F QUARLES

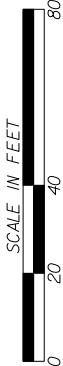


PROPERTY AND EXISTING R/W LINE  
REQUIRED R/W LINE  
CONSTRUCTION LIMITS  
EASEMENT FOR CONSTR  
& MAINTENANCE OF SLOPES  
EASEMENT FOR CONSTR OF SLOPES  
EASEMENT FOR CONSTR OF DRIVES



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AMEC ENVIRONMENT AND INFRASTRUCTURE, INC.  
1075 BIG SHAWUT ROAD  
KENNESAW, GEORGIA 30144  
(770) 421-3400

REVISION DATES	



CHEROKEE COUNTY  
OFFICE: PUBLIC WORKS AGENCY  
CROSSROAD PLAN

KC11019	46+29.53	60.00'	L	EAST CHEROKEE DR.
KC11020	46+58.00	60.00'	L	EAST CHEROKEE DR.
KC11021	46+58.00	44.75'	L	EAST CHEROKEE DR.
KC11022	47+29.00	44.02'	L	EAST CHEROKEE DR.
KC11023	47+29.00	45.00'	R	EAST CHEROKEE DR.
KC11035	46+37.00	60.00'	R	EAST CHEROKEE DR.
KC11036	46+06.38	60.00'	R	EAST CHEROKEE DR.
KC11037	45+00.00	33.91'	R	EAST CHEROKEE DR.
KC11062	45+00.00	60.00'	R	EAST CHEROKEE DR.
KC11063	45+69.00	45.00'	R	EAST CHEROKEE DR.
KC11064	45+00.00	45.00'	R	EAST CHEROKEE DR.
KC11065	45+00.00	45.42'	L	EAST CHEROKEE DR.
KC11066	45+57.00	60.00'	L	EAST CHEROKEE DR.
KC11067	46+29.33	75.00'	L	EAST CHEROKEE DR.
KC13021	46+56.00	60.00'	R	EAST CHEROKEE DR.
KC13044	45+00.00	60.00'	R	EAST CHEROKEE DR.
KC13045	45+00.00	45.80'	L	EAST CHEROKEE DR.
KC13046	45+00.00	56.00'	L	EAST CHEROKEE DR.
KC13047	45+48.00	60.00'	L	EAST CHEROKEE DR.
KC13062	46+58.00	75.00'	L	EAST CHEROKEE DR.
KC14002	46+63.00	100.00'	R	EAST CHEROKEE DR.
KC14016	46+62.34	60.00'	R	EAST CHEROKEE DR.
KC14017	45+85.00	91.00'	R	EAST CHEROKEE DR.
KC14018	45+57.00	75.00'	R	EAST CHEROKEE DR.
KC14019	46+48.00	91.00'	R	EAST CHEROKEE DR.
KC14020	47+42.00	60.00'	L	EAST CHEROKEE DR.
KC14031	46+06.41	33.97'	R	EAST CHEROKEE DR.
SVA168	47+29.71	44.26'	L	EAST CHEROKEE DR.
SVA237	46+29.74	44.95'	L	EAST CHEROKEE DR.
SVA238				

[illegible]



- A

165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME 1.5 INCH
- B

220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 2 INCH
- C

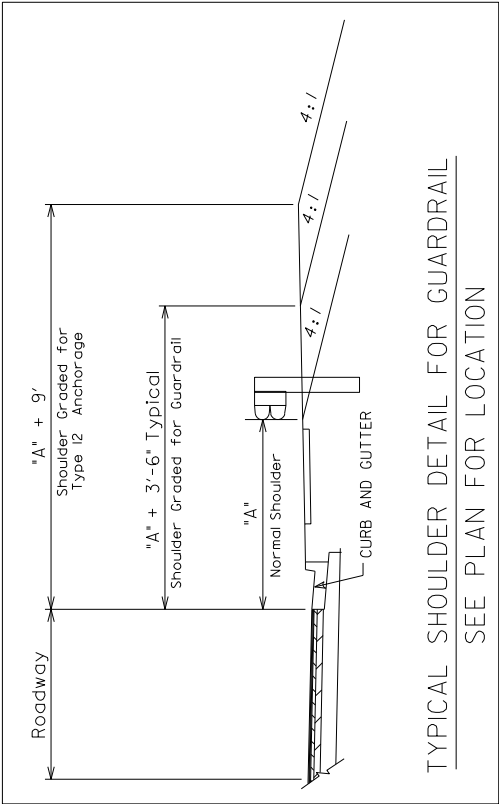
440 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 4 INCH
- D

10 INCH GRADED AGGREGATE BASE COURSE, INCL MATL
- E

CONCRETE CURB & GUTTER, 8 IN X 30 IN, TP 2
- G

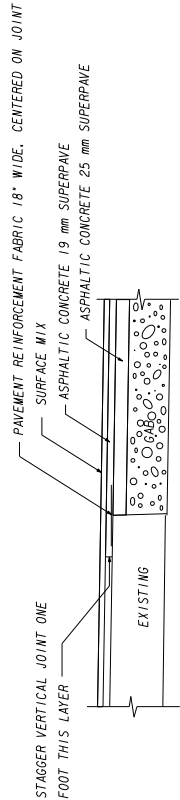
CONC SIDEWALK, 4 IN
- L

LEVELING AS REQ'D

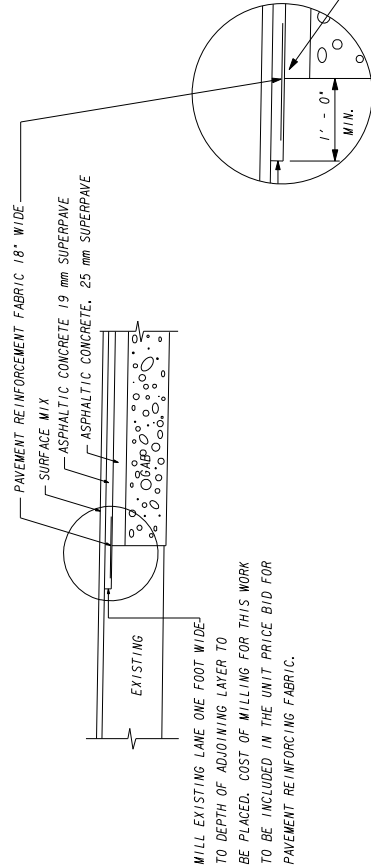


TYPICAL SHOULDER DETAIL FOR GUARDRAIL  
SEE PLAN FOR LOCATION

TYPICAL SECTION DETAIL TO BE USED WHEN  
EXISTING PAVEMENT IS TO BE RESURFACED WITH  
TWO INCHES OR MORE OF ASPHALTIC CONCRETE



TYPICAL SECTION DETAIL TO BE USED WHEN  
EXISTING PAVEMENT IS TO BE RESURFACED WITH  
LESS THAN TWO INCHES OF ASPHALTIC CONCRETE

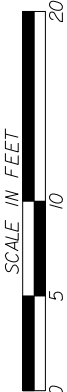


PROPERTY AND EXISTING R/W LINE -----P-----  
REQUIRED R/W LINE -----G-----  
CONSTRUCTION LIMITS -----E-----  
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES  
EASEMENT FOR CONSTR OF SLOPES  
EASEMENT FOR CONSTR OF DRIVES



**ameco**  
AMEC ENVIRONMENT AND INFRASTRUCTURE, INC.  
1075 BIG SHANTY ROAD  
SUITE 100  
KENNESAW, GEORGIA 30144  
(770) 421-3400

REVISION DATES	



CHEROKEE COUNTY  
OFFICE: PUBLIC WORKS AGENCY  
TYPICAL SECTIONS

- (A)

165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME 1.5 INCH
- (B)

220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 2 INCH
- (C)

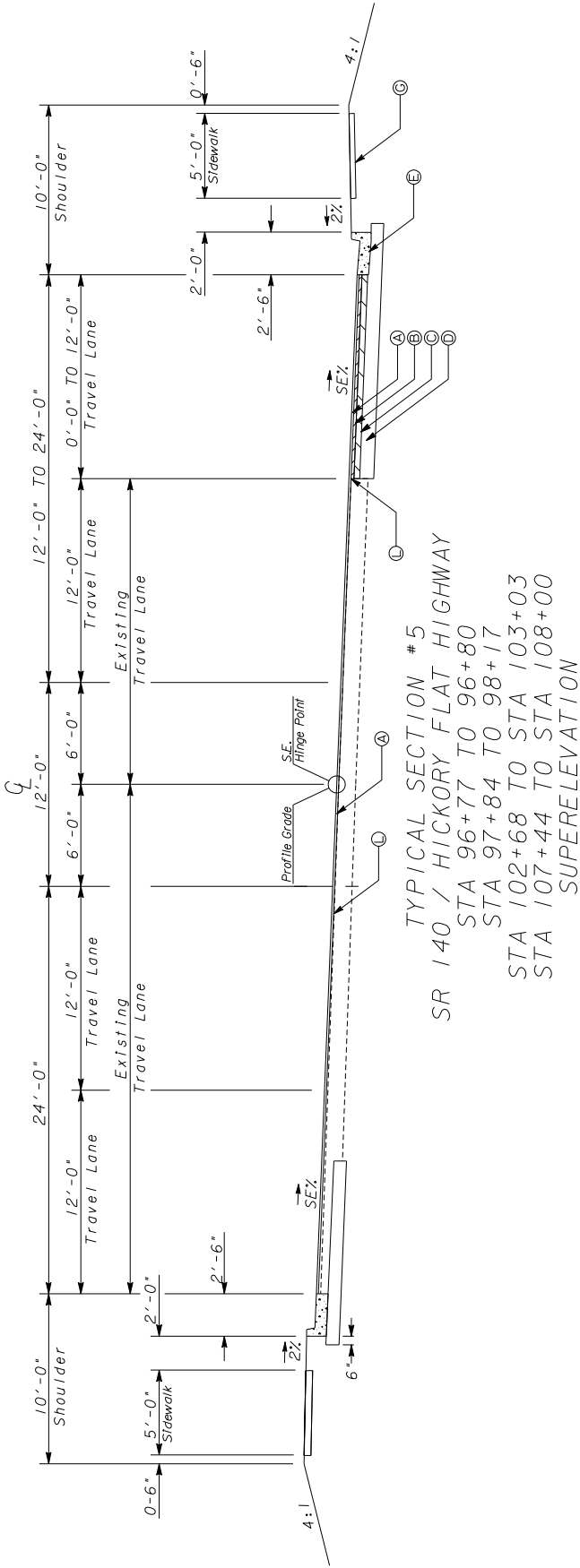
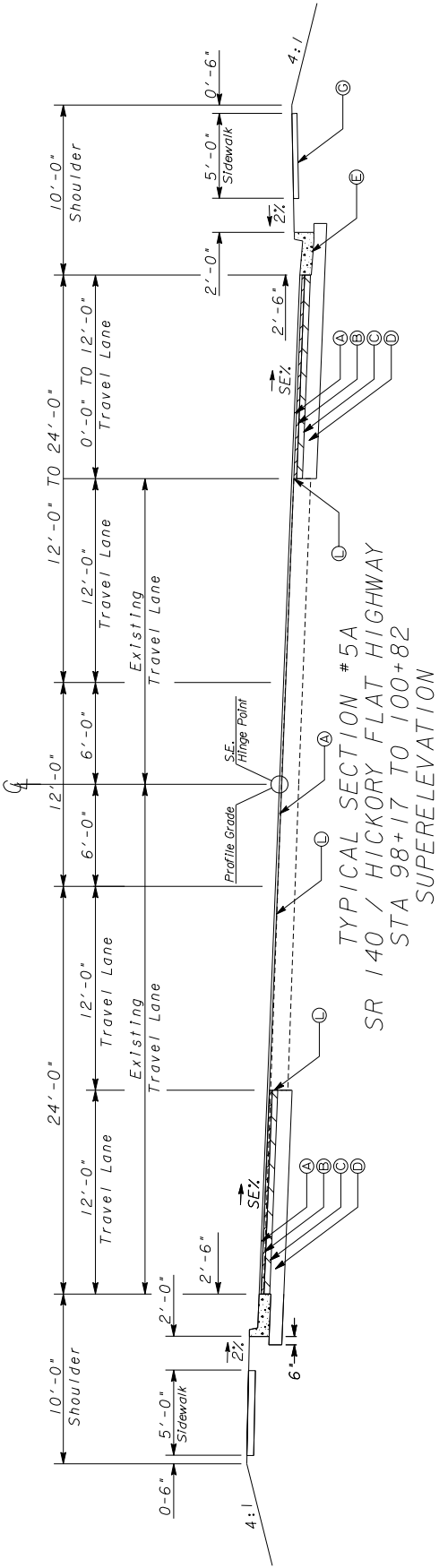
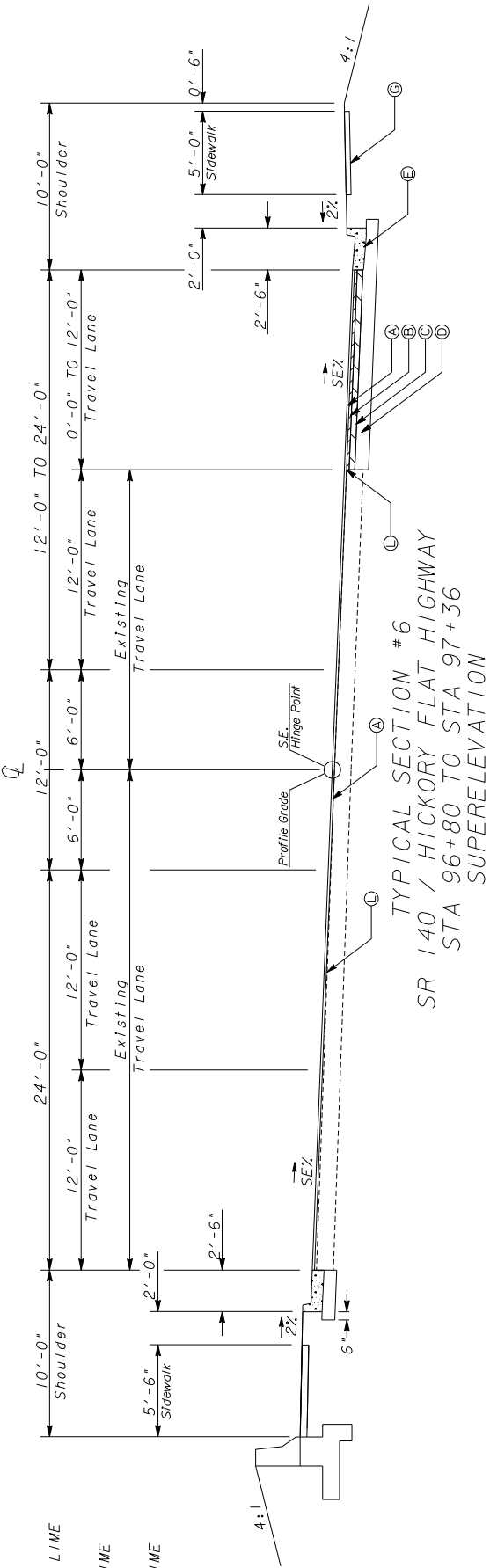
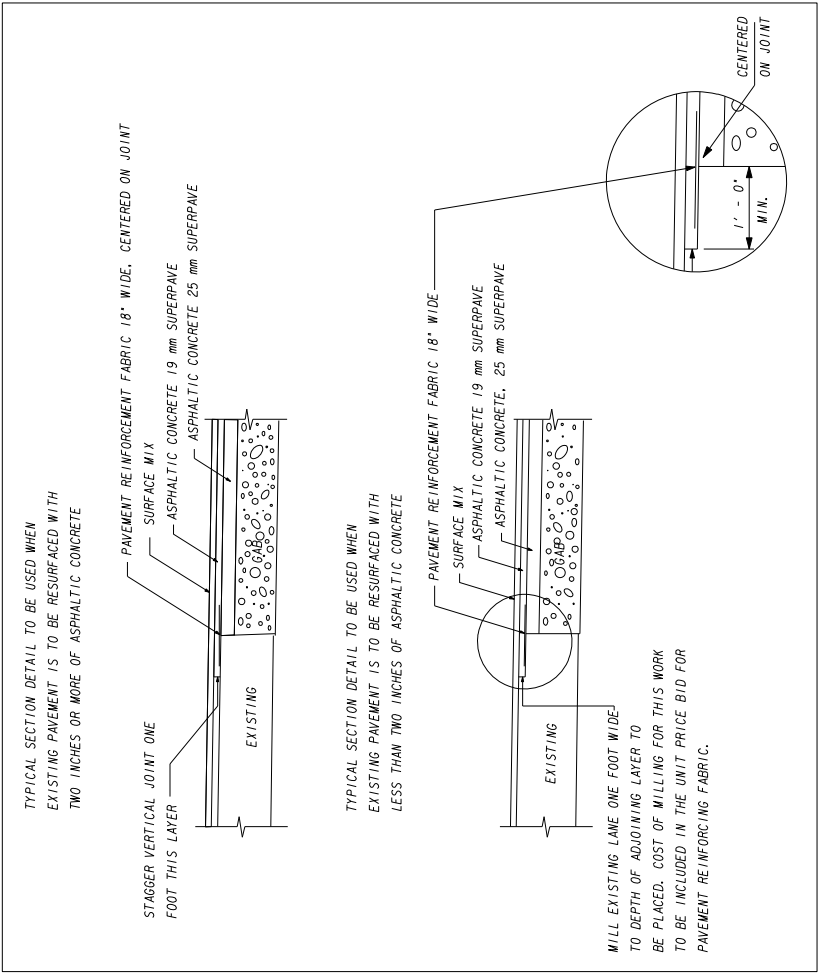
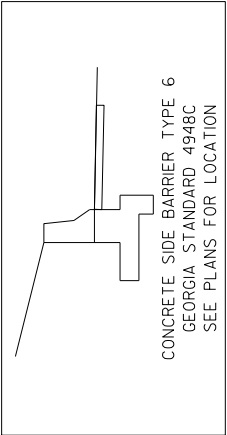
440 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 4 INCH
- (D)

10 INCH GRADED AGGREGATE BASE COURSE, INCL MATL
- (E)

CONCRETE CURB & GUTTER, 8 IN X 30 IN, TP 2
- (G)

CONC SIDEWALK, 4 IN
- (L)

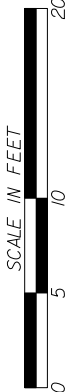
LEVELING AS REQ'D



PROPERTY AND EXISTING R/W LINE -----P-----  
REQUIRED R/W LINE -----G-----  
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EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES  
EASEMENT FOR CONSTR OF SLOPES  
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REVISION DATES	



CHEROKEE COUNTY  
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TYPICAL SECTIONS

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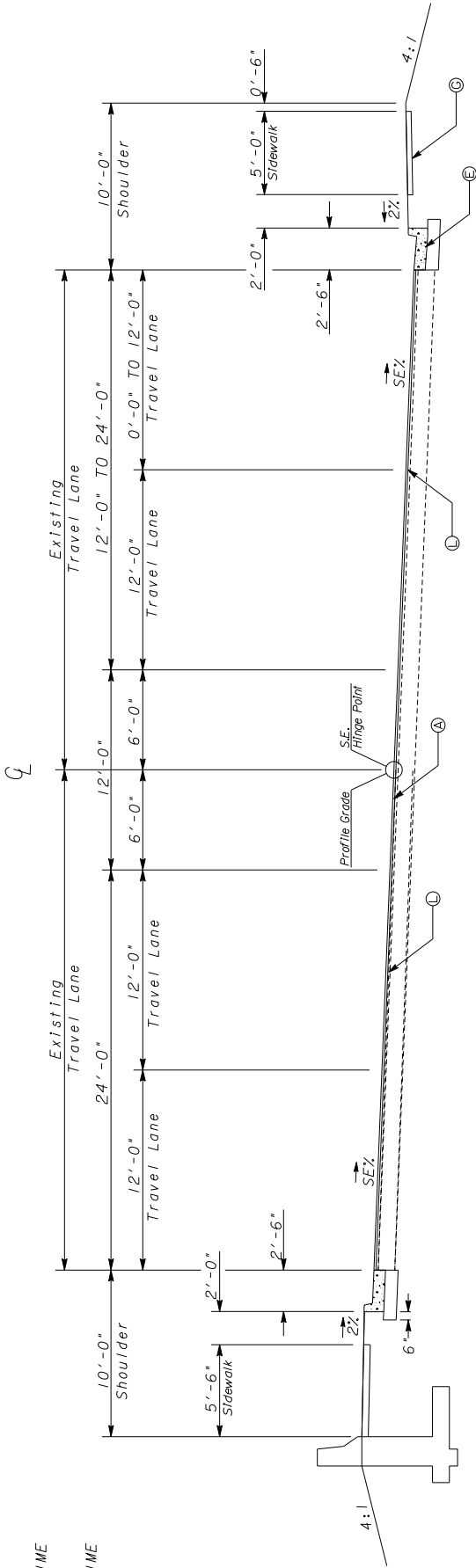
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- (D)

10 INCH GRADED AGGREGATE BASE COURSE, INCL MATL
- (E)

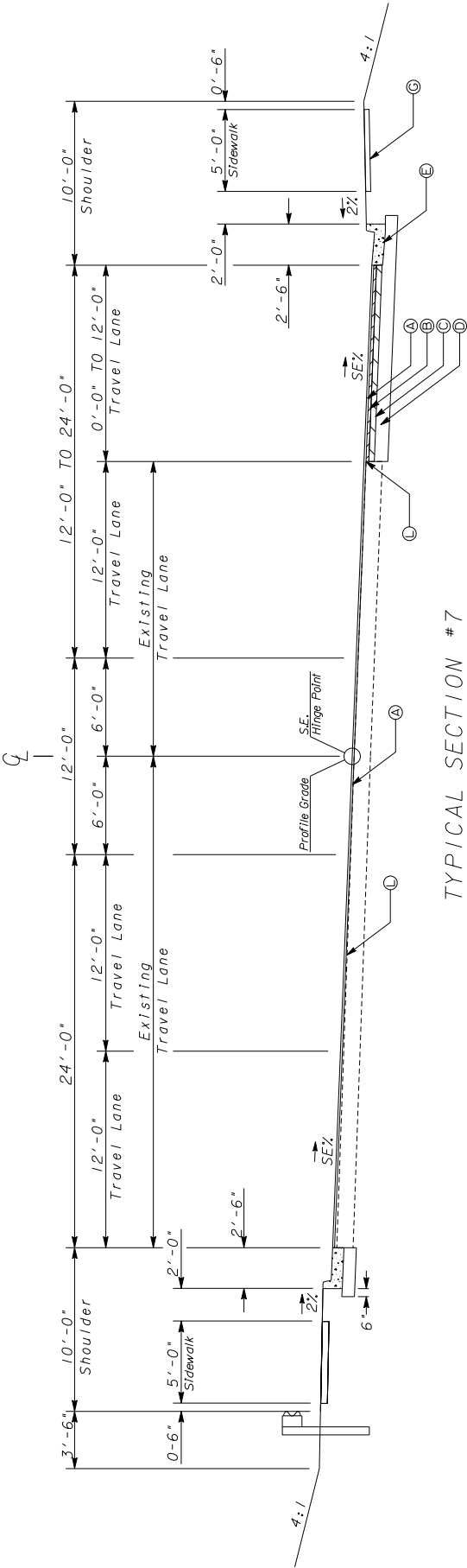
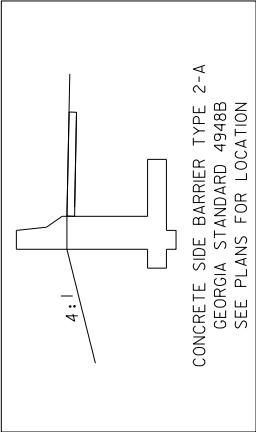
CONCRETE CURB & GUTTER, 8 IN X 30 IN, TP 2
- (G)

CONC SIDEWALK, 4 IN
- (L)

LEVELING AS REQ'D



TYPICAL SECTION #8  
SR 140 / HICKORY FLAT HIGHWAY  
STA 100+82 TO STA 102+20  
SUPERELEVATION



TYPICAL SECTION #7  
SR 140 / HICKORY FLAT HIGHWAY  
STA 97+36 TO STA 97+84  
STA 102+20 TO STA 102+68  
SUPERELEVATION

PROPERTY AND EXISTING R/W LINE -----P-----  
REQUIRED R/W LINE -----G-----  
CONSTRUCTION LIMITS -----E-----  
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES  
EASEMENT FOR CONSTR OF SLOPES  
EASEMENT FOR CONSTR OF DRIVES



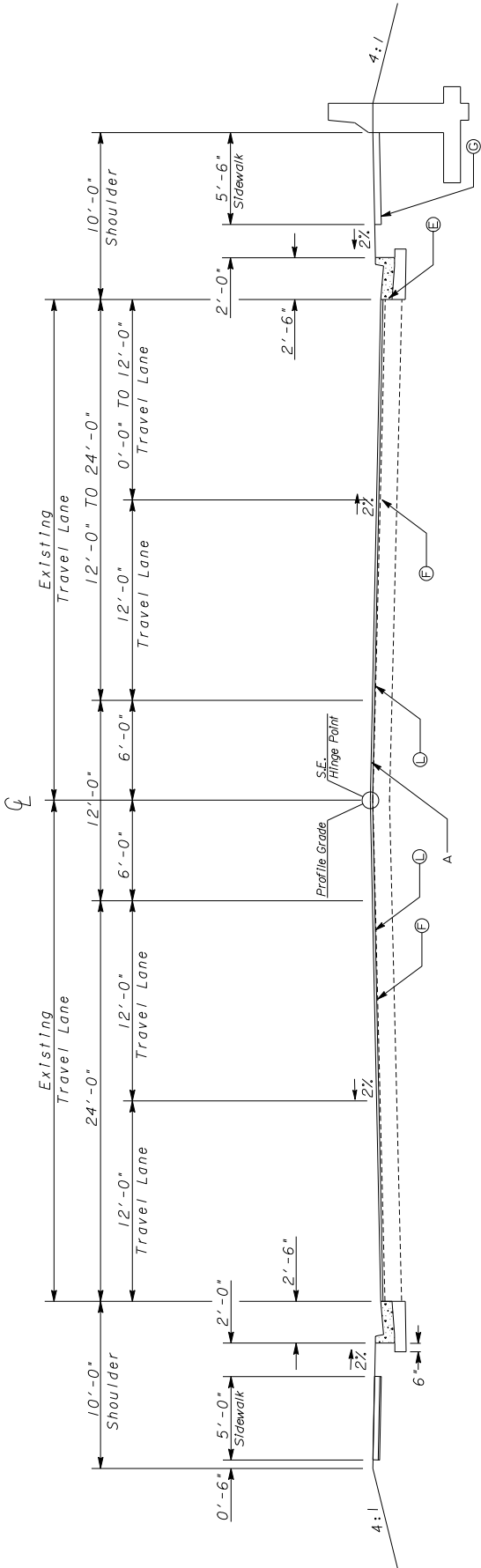
**amec**  
AMEC ENVIRONMENT AND INFRASTRUCTURE, INC.  
1075 BIG SHANTY ROAD  
SUITE 100  
KENNESAW, GEORGIA 30144  
(770) 421-3400

REVISION DATES	

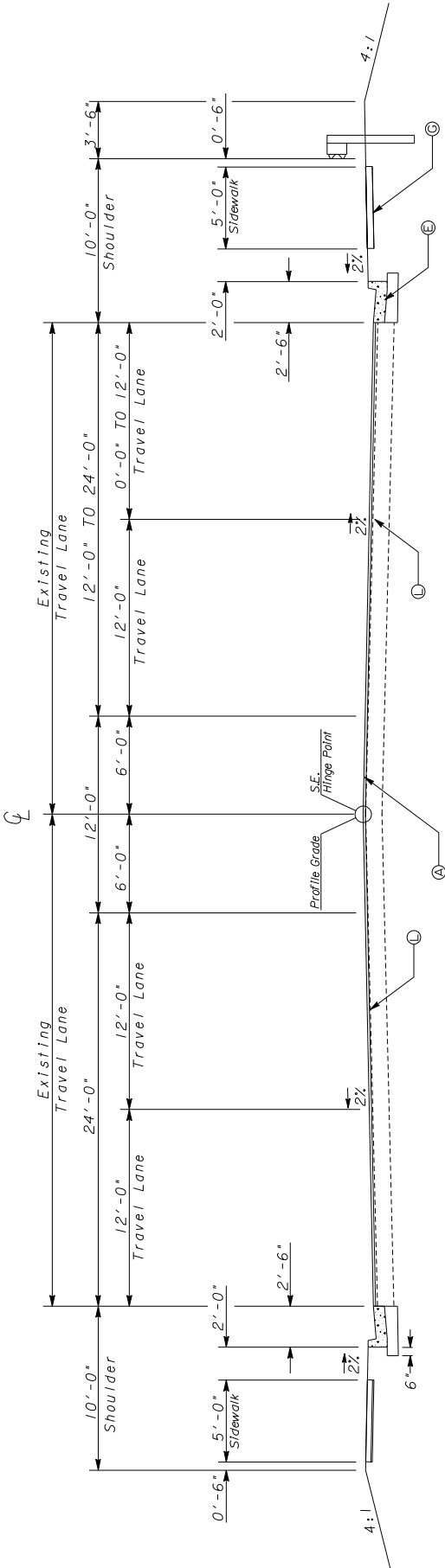


CHEROKEE COUNTY  
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TYPICAL SECTIONS

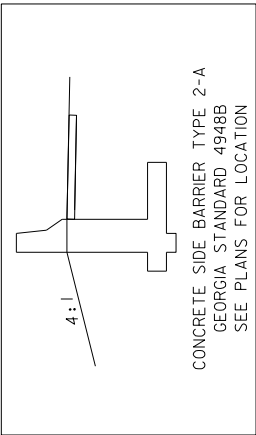
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- (C) 440 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 4 INCH
- (D) 10 INCH GRADED AGGREGATE BASE COURSE, INCL MATL
- (E) CONCRETE CURB & GUTTER, 8 IN X 30 IN, TP 2
- (G) CONC SIDEWALK, 4 IN
- (L) LEVELING AS REQ'D



TYPICAL SECTION # 10  
SR 140 / HICKORY FLAT HIGHWAY  
STA 104+15 TO STA 104+44  
TANGENT



TYPICAL SECTION # 9  
SR 140 / HICKORY FLAT HIGHWAY  
STA 103+03 TO STA 104+15  
TANGENT

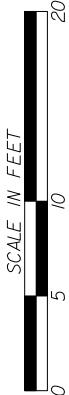


- PROPERTY AND EXISTING R/W LINE
- REQUIRED R/W LINE
- CONSTRUCTION LIMITS
- EASEMENT FOR CONSTR
- & MAINTENANCE OF SLOPES
- EASEMENT FOR CONSTR OF SLOPES
- EASEMENT FOR CONSTR OF DRIVES



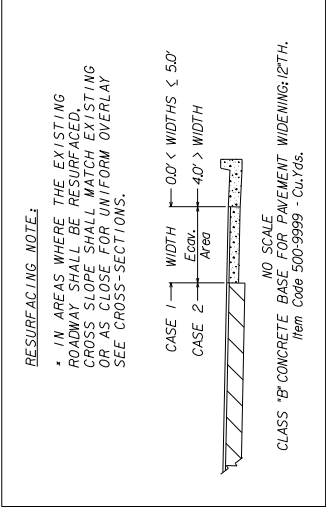
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- (G) CONC SIDEWALK, 4 IN
- (L) LEVELING AS REQ'D



ALLOWABLE RANGES TABLE

FOR THIS PROJECT, CROSS SLOPES THAT ARE ADJUSTED TO "BEST FIT" EXISTING PAVEMENT SLOPES ARE SUBJECT TO THE FOLLOWING LIMITS:

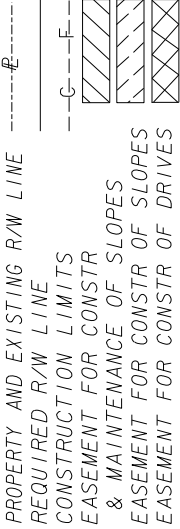
A. NORMAL CROWN	SECTION WITH GRADES 0.5% OR GREATER	SECTION WITH GRADES LESS THAN 0.5%
	0.0150 FT/FT - MINIMUM 0.0208 FT/FT - DESIRABLE 0.0250 FT/FT - MAXIMUM	0.0156 FT/FT - MINIMUM 0.0208 FT/FT - DESIRABLE 0.0300 FT/FT - MAXIMUM

- B. SUPERELEVATION RATE  
S.E. RATE SHOWN ON PLANS OR SE RATE EXISTING IN FIELD, WHICHEVER IS GREATER.
- C. SUPERELEVATION TRANSITION LENGTH (LENGTH FROM FLAT POINT TO FULL SE)

MINIMUM	RATE OF CHANGE	CORRESPONDING DIFFERENCE IN GRADE BETWEEN PIVOT POINT AND EDGE OF PAVEMENT
DESIRABLE	1:150	0.67%
MAXIMUM	1:200	0.50%
	1:300	0.33%

- LENGTH SHALL BE SET TO AVOID CREATING A FLAT GUTTER GRADE ON LOW SIDE AND TO AVOID FLAT CROSS SLOPES AT OR NEAR THE LOW POINT OF VERTICAL CURVES.
- D. POSITIONING OF SUPERELEVATION TRANSITION LENGTH ON SIMPLE CURVES  
50% OF TRANSITION INSIDE CURVE - MAXIMUM  
33% OF TRANSITION INSIDE CURVE - DESIRABLE  
20% OF TRANSITION INSIDE CURVE - MINIMUM
- NOTE: CROWN WIPE-OUT SHALL BE AT THE SAME RATE AS THE SE TRANSITION.

- E. SMOOTHING OF BREAKS IN EDGE PROFILE AT BEGIN AND END OF TRANSITION SHALL BE ACCOMPLISHED BY VERTICAL CURVE WITH A MINIMUM LENGTH (IN FEET) EQUAL TO THE SPEED DESIGN (IN MPH).



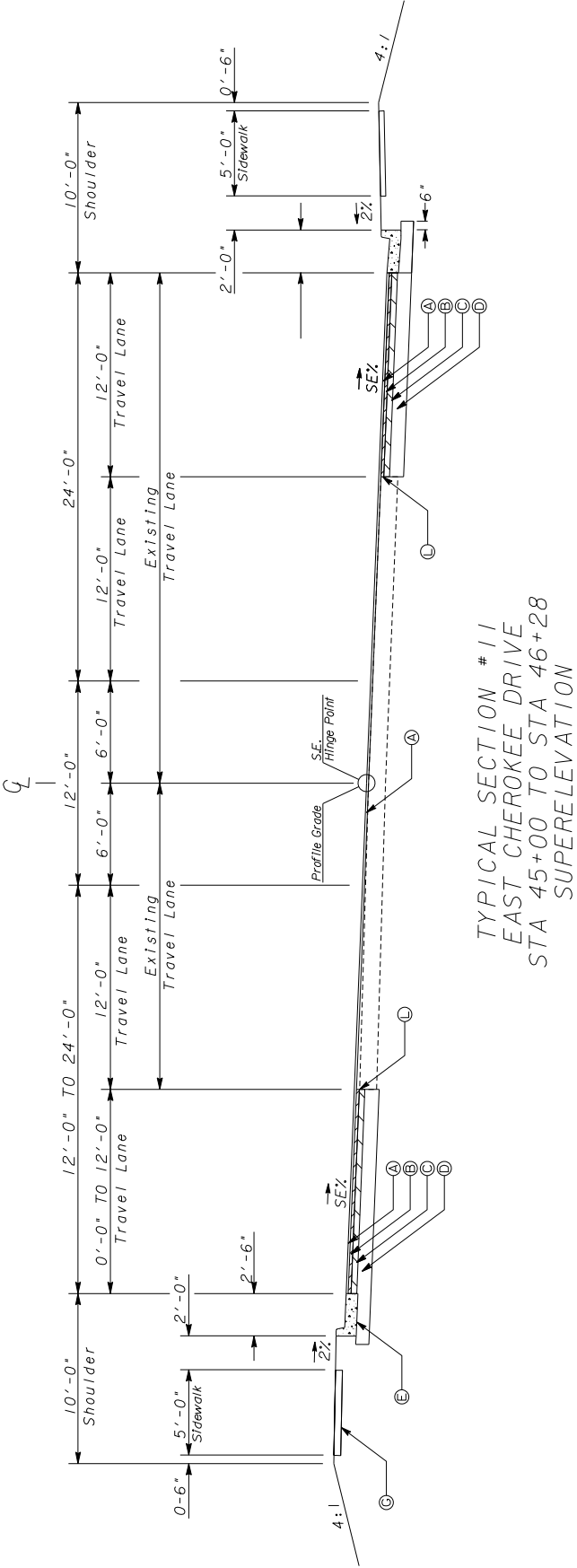
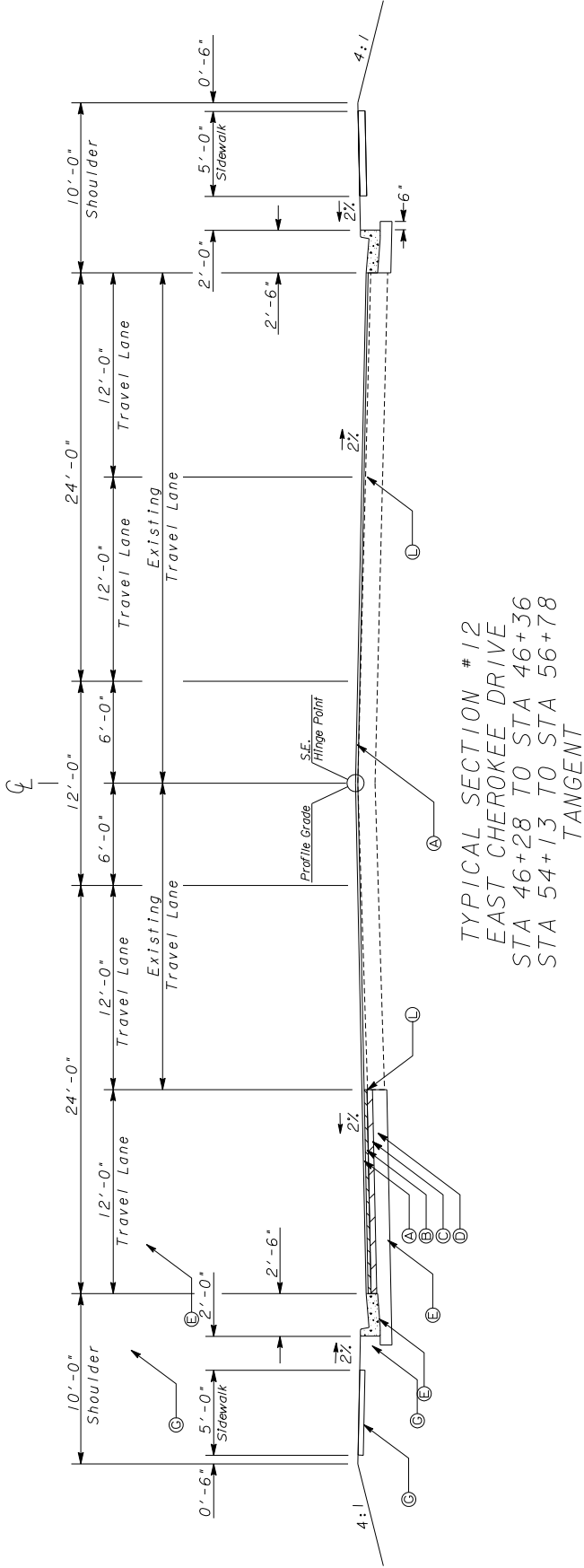
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CHEROKEE COUNTY  
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- A

165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME 1.5 INCH
- B

220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 2 INCH
- C

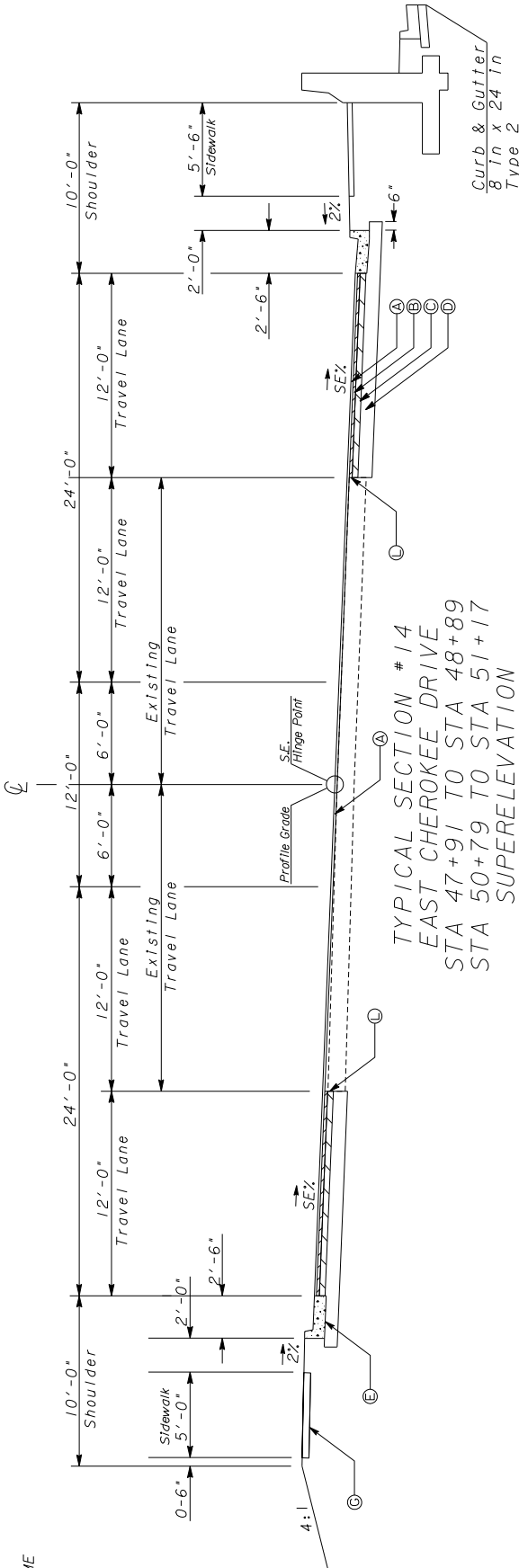
440 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 4 INCH
- D

10 INCH GRADED AGGREGATE BASE COURSE, INCL MATL
- E

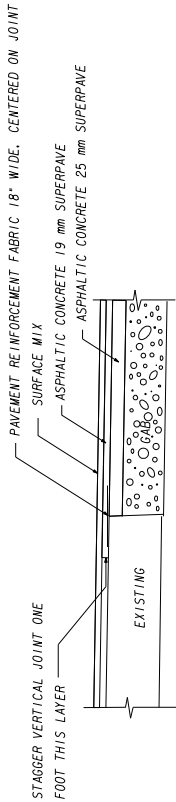
CONCRETE CURB & GUTTER, 8 IN X 30 IN, TP 2
- G

CONC SIDEWALK, 4 IN
- L

LEVELING AS REQ'D

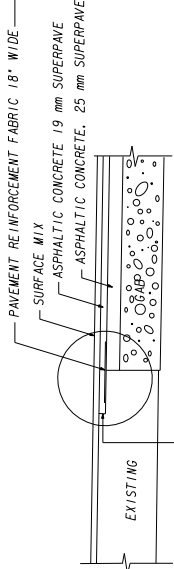


TYPICAL SECTION #14  
EAST CHEROKEE DRIVE  
STA 47+91 TO STA 48+89  
STA 50+79 TO STA 51+17  
SUPERELEVATION

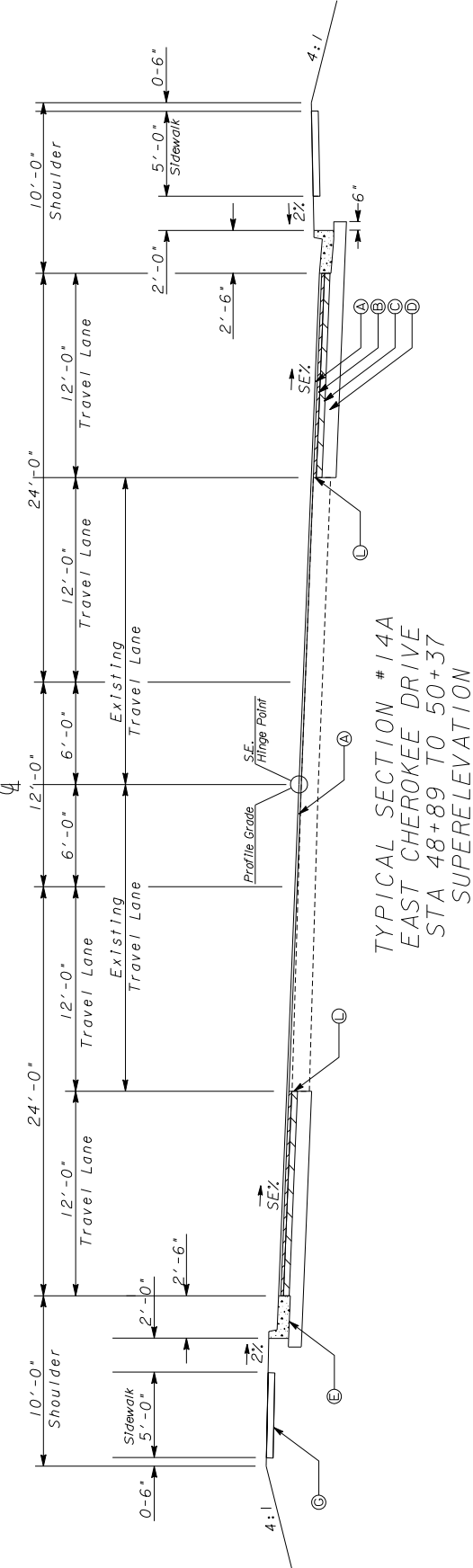
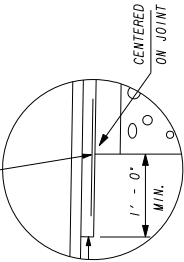


TYPICAL SECTION DETAIL TO BE USED WHEN  
EXISTING PAVEMENT IS TO BE RESURFACED WITH  
TWO INCHES OR MORE OF ASPHALTIC CONCRETE

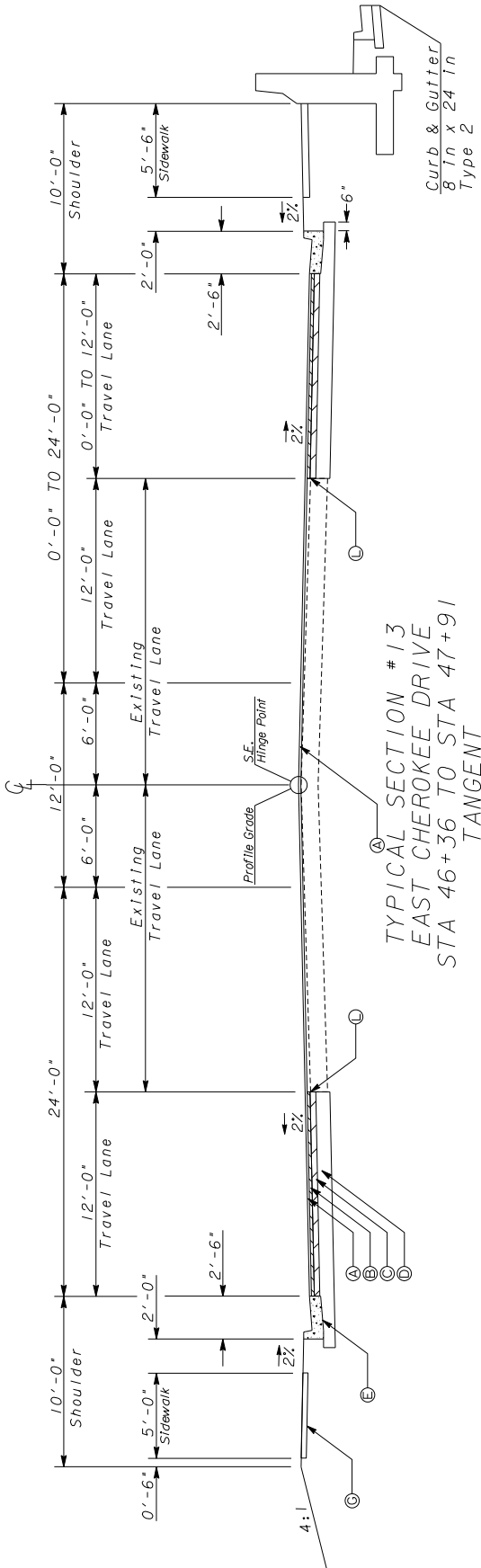
TYPICAL SECTION DETAIL TO BE USED WHEN  
EXISTING PAVEMENT IS TO BE RESURFACED WITH  
LESS THAN TWO INCHES OF ASPHALTIC CONCRETE



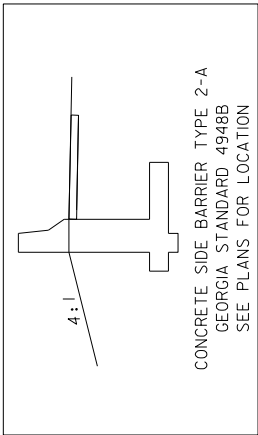
MILL EXISTING LANE ONE FOOT WIDE  
TO DEPTH OF ADJOINING LAYER TO  
BE PLACED. COST OF MILLING FOR THIS WORK  
TO BE INCLUDED IN THE UNIT PRICE BID FOR  
PAVEMENT REINFORCING FABRIC.



TYPICAL SECTION #14A  
EAST CHEROKEE DRIVE  
STA 48+89 TO 50+37  
SUPERELEVATION



TYPICAL SECTION #13  
EAST CHEROKEE DRIVE  
STA 46+36 TO STA 47+91  
TANGENT



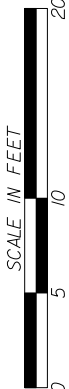
PROPERTY AND EXISTING R/W LINE -----P-----  
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CONSTRUCTION LIMITS  
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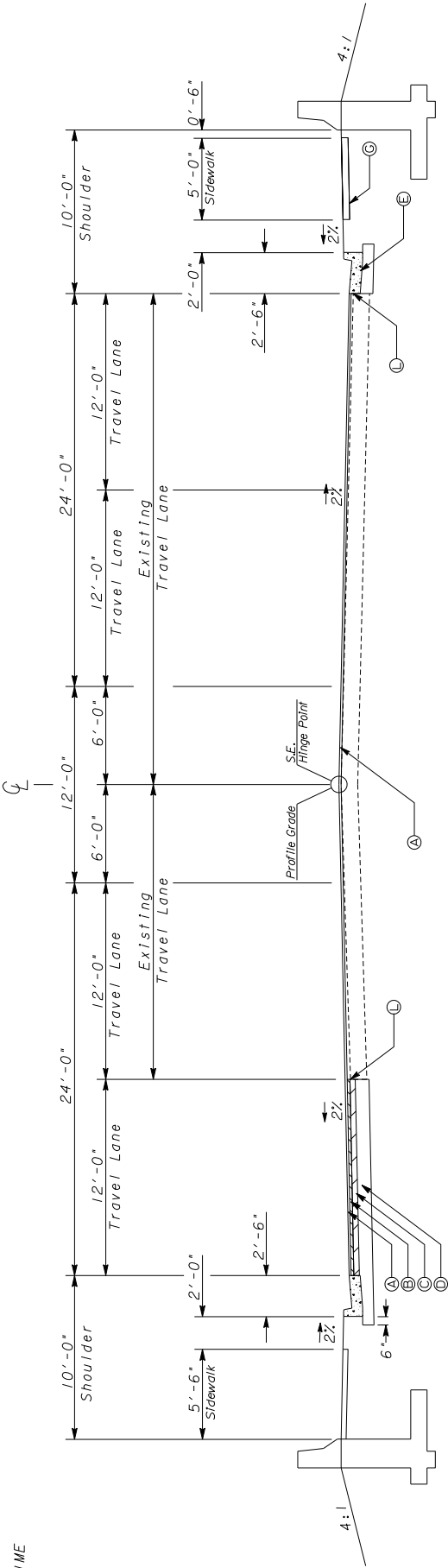
CHEROKEE COUNTY  
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TYPICAL SECTIONS



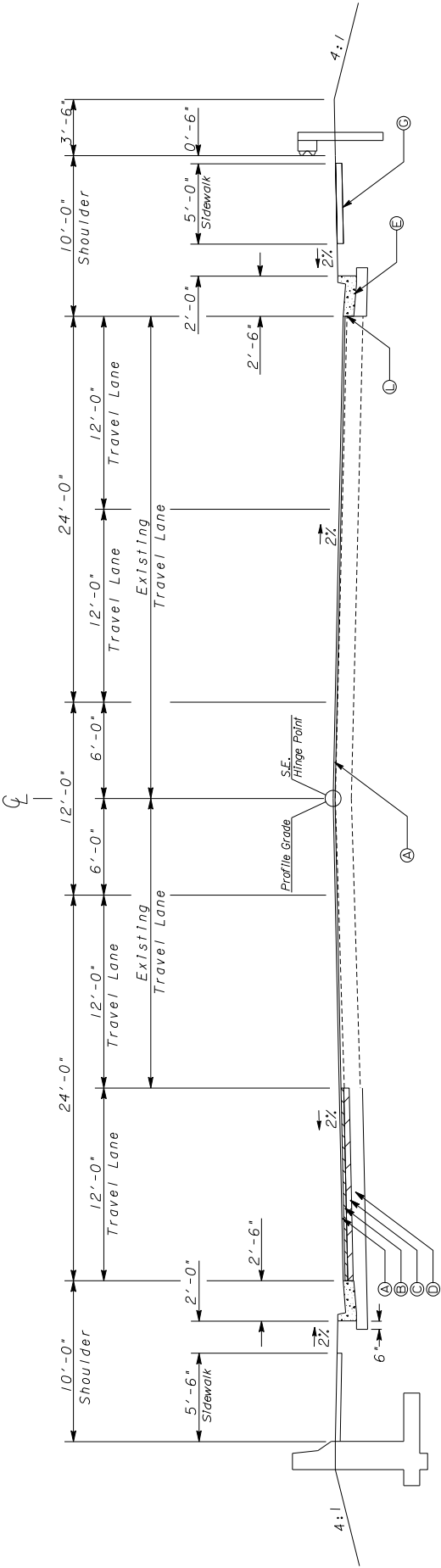




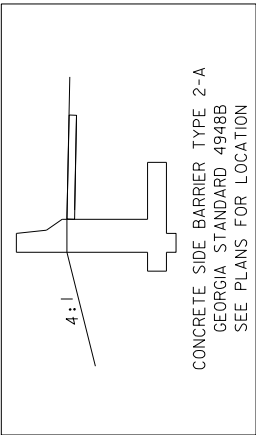
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- (G) CONC SIDEWALK, 4 IN
- (L) LEVELING AS REQ'D



TYPICAL SECTION #20  
EAST CHEROKEE DRIVE  
STA 52+95 TO STA 53+64  
TANGENT



TYPICAL SECTION #19  
EAST CHEROKEE DRIVE  
STA 52+47 TO STA 52+95  
TANGENT



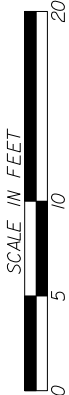
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CONSTRUCTION LIMITS -----E-----  
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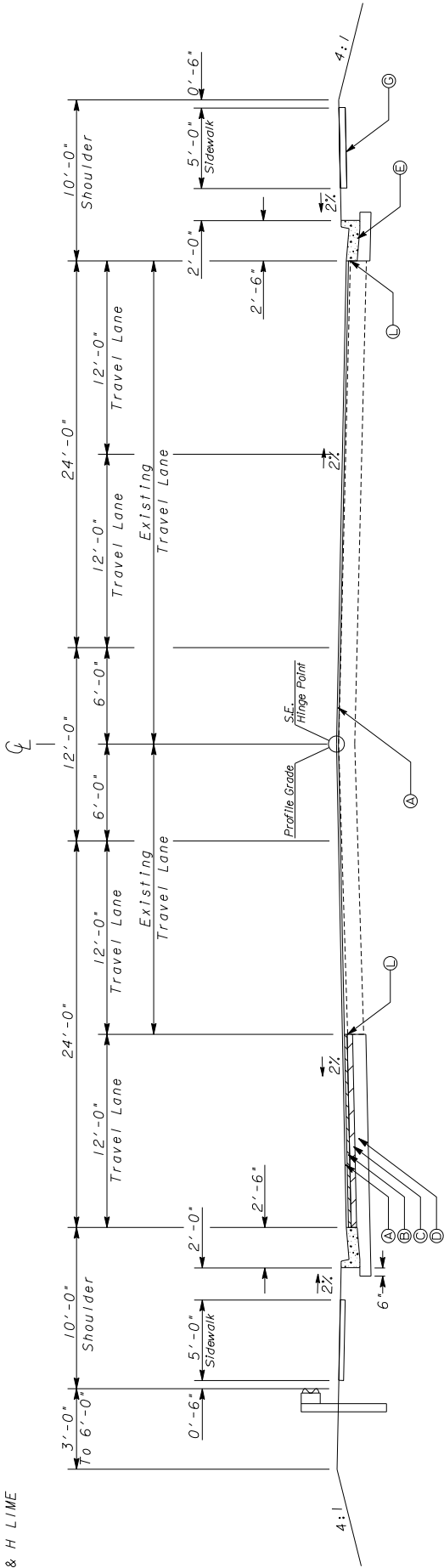
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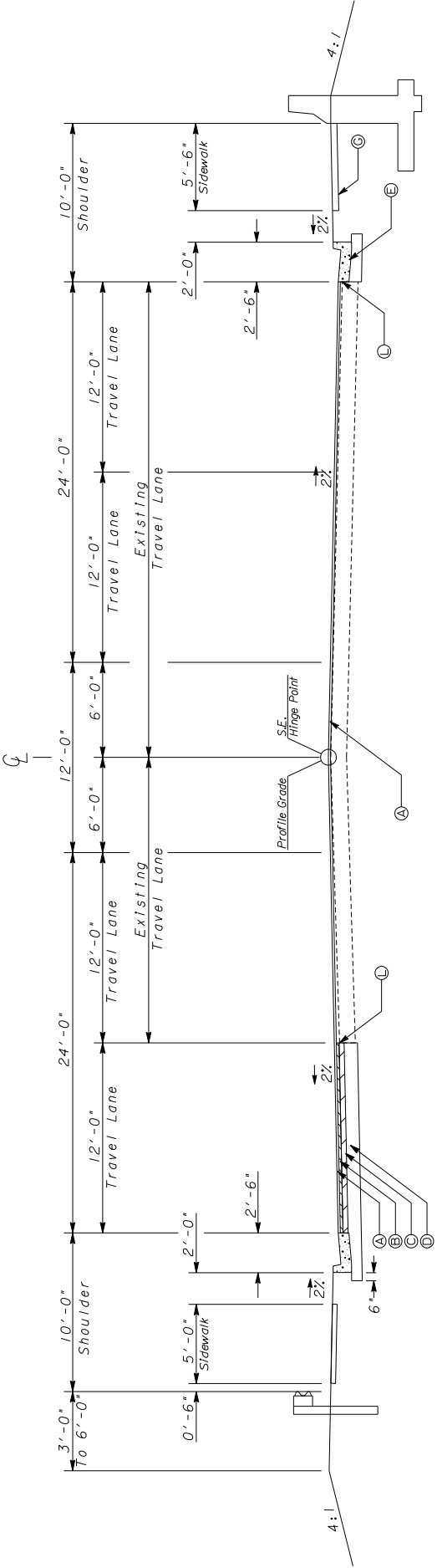
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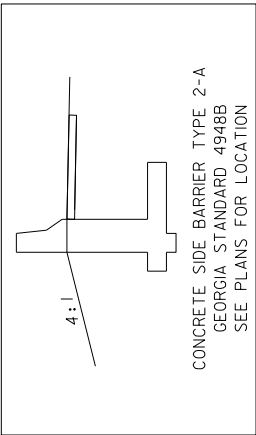
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- (G) CONC SIDEWALK, 4 IN
- (L) LEVELING AS REQ'D



TYPICAL SECTION #22  
EAST CHEROKEE DRIVE  
STA 53+78 TO STA 54+13  
TANGENT



TYPICAL SECTION #21  
EAST CHEROKEE DRIVE  
STA 53+64 TO STA 53+78  
TANGENT



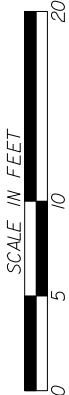
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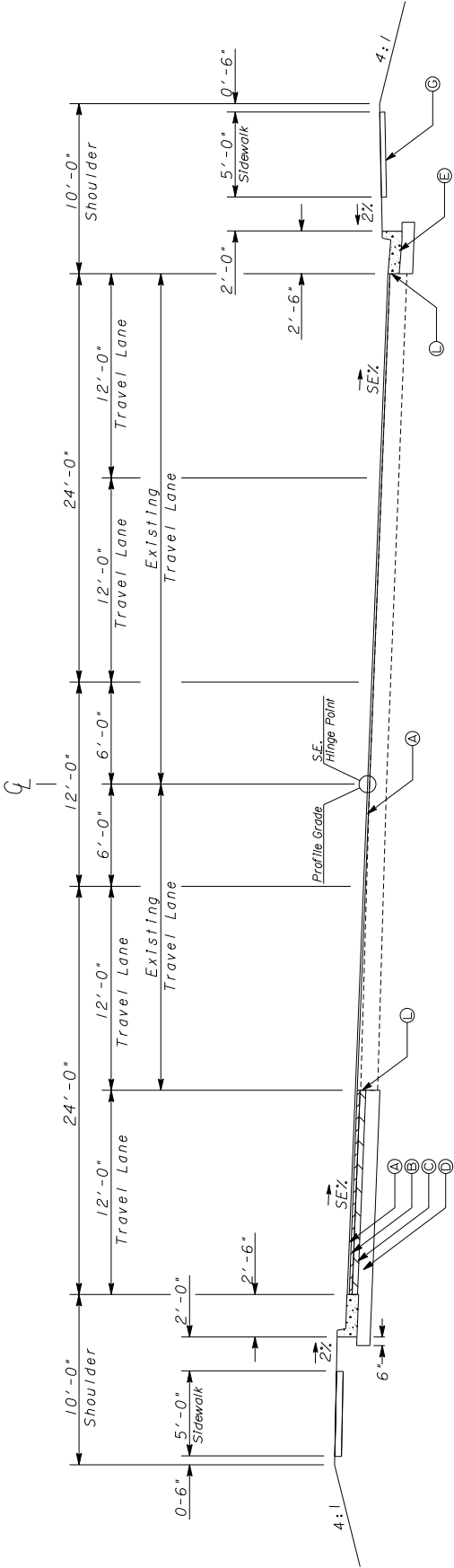
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- (L) LEVELING AS REQ'D



TYPICAL SECTION #23  
EAST CHEROKEE DRIVE  
STA 56+78 TO STA 57+00  
SUPERELEVATION

PROPERTY AND EXISTING R/W LINE -----P-----  
REQUIRED R/W LINE -----  
CONSTRUCTION LIMITS ---G---E---  
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES  
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## STATE HIGHWAY AGENCY

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## JOB ESTIMATE REPORT

JOB NUMBER : CPR-140-765(057)01 SPEC YEAR: 01  
DESCRIPTION: SR 140 / HICKORY FLAT HWY / E. CHEORKEE ST INTERSECTION IMPROVEMENT

## ITEMS FOR JOB 111111

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
ROADWAY ITEMS							
0005	150-1000		LS	TRAFFIC CONTROL - TRAFFIC CONTROL - CPR-140-765(057)01	1.000	250000.00	250000.00
0010	207-0203		CY	FOUND BK FILL MATL, TP II	25.000	66.43	1660.86
0015	210-0100		LS	GRADING COMPLETE - GRADING COMPLETE - CPR-140-765(057)01	1.000	200000.00	200000.00
0020	310-1101		TN	GR AGGR BASE CRS, INCL MATL	171.000	34.42	5886.27
0025	318-3000		TN	AGGR SURF CRS	140.000	28.98	4057.33
0029	009-3000		LS	MISCELLANEOUS CONSTRUCTION STAGING - TEMP. PVMT	1.000	250000.00	250000.00
0030	402-1812		TN	RECYL AC LEVELING, INC BM&HL	6392.000	78.22	500033.76
0035	402-3121		TN	RECYL AC 25MM SP, GP1/2, BM&HL	41.000	108.42	4445.61
0040	402-3130		TN	RECYL AC 12.5MM SP, GP2, BM&HL	1765.000	88.69	156541.34
0045	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2 , INC BM&HL	21.000	116.28	2441.99
0050	413-1000		GL	BITUM TACK COAT	107.000	4.28	458.60
0055	432-5010		SY	MILL ASPH CONC PVMT, VARB DEPTH	6105.000	4.36	26642.53
0060	441-0104		SY	CONC SIDEWALK, 4 IN	2710.000	35.60	96481.93
0065	441-0740		SY	CONC MEDIAN, 4 IN	309.000	27.81	8593.29
0075	441-6216		LF	CONC CURB & GUTTER/ 8"X24"TP2	330.000	16.27	5370.36
0080	441-6222		LF	CONC CURB & GUTTER/ 8"X30"TP2	5570.000	15.16	84478.18
0085	441-6740		LF	CONC CURB & GUTTER/ 8"X30" TP7	530.000	26.39	13990.48
0090	446-1100		LF	PVMT REF FAB STRIPS, TP2, 18 INCH WIDTH	3800.000	4.75	18072.42
0095	500-3800		CY	CL A CONC, INCL REINF STEEL	2.000	1063.85	2127.72
0100	500-9999		CY	CL B CONC, BASE OR PVMT WIDEN	40.000	212.06	8482.45
0105	550-1180		LF	STM DR PIPE 18", H 1-10	553.000	49.08	27141.56
0110	573-2006		LF	UNDDR PIPE INCL DRAIN AGGR 6"	1125.000	20.87	23480.56
0115	611-5300		LF	RESET GUARDRAIL	100.000	23.00	2300.67
0120	611-5320		EA	RESET GDRAIL ANCHORAGE, ALL TPS	1.000	750.00	750.00
0125	611-8000		EA	ADJUST CATCH BASIN TO GRADE	10.000		
0130	611-8040		EA	ADJUST DROP INLET TO GRADE	7.000	994.03	6958.27
0135	611-8050		EA	ADJUST MANHOLE TO GRADE	7.000	954.20	6679.41
0140	621-4021		LF	CONCRETE SIDE BARRIER, TY 2A	833.000	330.00	274890.00
0145	621-4060		LF	CONCRETE SIDE BARRIER, TY 6	292.000	380.00	110960.00
0150	634-1200		EA	RIGHT OF WAY MARKERS	74.000	119.02	8807.90
0155	641-1100		LF	GUARDRAIL, TP T	166.000	67.69	11237.74
0160	641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	8.000	2248.78	17990.31
0165	643-8200		LF	BARRIER FENCE (ORANGE), 4 FT	500.000	1.81	907.52
0170	668-1100		EA	CATCH BASIN, GP 1	8.000	2501.79	20014.33
0175	668-1110		LF	CATCH BASIN, GP 1, ADDL DEPTH	9.000	242.83	2185.55

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DATE : 10/14/2016  
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## JOB ESTIMATE REPORT

0180	668-2100	EA	DROP INLET, GP 1	2.000	2518.74	5037.48
PERMANENT EROSION CONTROL ITEMS						
0185	603-2182	SY	STN DUMPED RIP RAP, TP 3, 24"	7.000	61.01	427.14
0190	603-7000	SY	PLASTIC FILTER FABRIC	7.000	5.38	37.70
0195	700-6910	AC	PERMANENT GRASSING	3.000	1201.24	3603.75
0200	700-7000	TN	AGRICULTURAL LIME	9.000	143.80	1294.25
0205	700-8000	TN	FERTILIZER MIXED GRADE	3.000	593.33	1780.01
0210	700-8100	LB	FERTILIZER NITROGEN CONTENT	147.000	3.46	509.92
0215	716-2000	SY	EROSION CONTROL MATS, SLOPES	1600.000	1.14	1825.98
TEMPORARY EROSION CONTROL ITEMS						
0220	163-0232	AC	TEMPORARY GRASSING	2.000	466.88	933.77
0225	163-0240	TN	MULCH	14.000	336.94	4717.26
0230	163-0529	LF	CNST/REM TEMP SED BAR OR BLD STRW CK DM	340.000	5.70	1938.82
0235	163-0542	EA	CONSTR & REM STONE FILTER RING	1.000	594.65	594.66
0240	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	49.000	153.13	7503.85
0245	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	2100.000	0.89	1880.63
0250	165-0050	LF	MAINT OF SILT RETENTION BARRIER	170.000	2.65	452.02
0255	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	49.000	54.91	2690.91
0260	165-0111	EA	MAINT OF STONE FILTER RING	1.000	373.48	373.49
0265	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	358.17	716.35
0270	167-1500	MO	WATER QUALITY INSPECTIONS	12.000	568.69	6824.32
0275	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	4200.000	3.42	14391.93
SIGNING & MARKING ITEMS						
0280	636-1020	SF	HWY SGN,TP1MAT,REFL SH TP3	34.000	18.62	633.23
0285	636-1033	SF	HWY SIGNS, TP1MAT,REFL SH TP 9	162.000	20.06	3250.08
0290	636-2070	LF	GALV STEEL POSTS, TP 7	458.000	8.10	3712.61
0295	653-0120	EA	THERM PVMT MARK, ARROW, TP 2	58.000	76.46	4434.76
0300	653-1501	LF	THERMO SOLID TRAF ST 5 IN, WHI	3753.000	0.52	1969.24
0305	653-1502	LF	THERMO SOLID TRAF ST, 5 IN YEL	2764.000	0.55	1542.59
0310	653-1704	LF	THERM SOLID TRAF STRIPE,24",WH	685.000	5.93	4063.67
0315	653-1804	LF	THERM SOLID TRAF STRIPE, 8",WH	3988.000	2.05	8176.44
0320	653-3501	GLF	THERMO SKIP TRAF ST, 5 IN, WHI	1892.000	0.40	758.94
0325	653-3502	GLF	THERMO SKIP TRAF ST, 5 IN, YEL	118.000	0.45	53.91
0330	653-6004	SY	THERM TRAF STRIPING, WHITE	1080.000	3.68	3974.75
0335	653-6006	SY	THERM TRAF STRIPING, YELLOW	570.000	3.89	2219.59
0340	654-1001	EA	RAISED PVMT MARKERS TP 1	92.000	4.41	405.76
0345	654-1003	EA	RAISED PVMT MARKERS TP 3	192.000	3.90	749.75
SIGNAL ITEMS						
0350	615-1200	LF	DIRECTIONAL BORE - SIZE:3 IN	110.000		
0355	636-1041	SF	HWY SIGNS,TP 2MAT,REFL SH TP 9	18.000	22.69	408.52
0360	639-4004	EA	STRAIN POLE, TP IV	4.000	8351.83	33407.33
0365	647-1000	LS	TRAF SIGNAL INSTALLATION NO - NO. 1 - CPR-140-765 (057) 01	1.000	100000.00	100000.00
ITEM TOTAL						2381364.30
INFLATED ITEM TOTAL						2381364.30

## STATE HIGHWAY AGENCY

DATE : 10/14/2016  
PAGE : 3

## JOB ESTIMATE REPORT

=====

TOTALS FOR JOB CPR-140-765(057)01

ESTIMATED COST:	2381364.30
CONTINGENCY PERCENT ( 10.0 ):	238136.43
CONSTRUCTION ENGINEERING AND INSPECTION (5.0%):	119068.22
FUEL, LIQUID AC ADJUSTMENT:	85902.32
ESTIMATED TOTAL:	2824471.25

=====



**Cherokee County Government**

Roadway Capital Program Management  
1130 Bluffs Parkway  
Canton, GA 30114  
678-493-6077  
Fax 678-493-6088

September 30, 2016

Mr. Cedric D. Clark, Project Manager  
Georgia Department of Transportation  
Office of Program Delivery  
600 West Peachtree Street  
Suite 1550  
Atlanta, Georgia 30308

Re: SR 140 at East Cherokee Drive Operational Improvements Project  
PI # 0013368  
Preliminary Right-of-way Estimate

Dear Mr. Clark:

Please be advised that Cherokee County is aware that it will be responsible for all right-of-way costs on this project.

The preliminary right-of-way estimate for the referenced project is \$935,685.00. A copy of the preliminary estimate is attached for your information.

Thank you for your help on this matter, if we can be of further assistance, please do not hesitate to contact us at 679-493-6077.

Sincerely,

Geoffrey E. Morton, P.E.  
County Engineer

Attachment

Cc: Barry K. Tarver  
Glenn Bowman, AMEC

Preliminary ROW Cost Estimate  
SR 140 at East Cherokee Drive - Operational Improvements  
PI No. 0013368  
September 30, 2016

Parcel No.	Reqd ROW (SF)	Reqd TCE (SF)	Reqd DWE (SF)	ROW Cost	TCE Cost	DWE Cost	Title Work	Appraisal	ROW Agent	Total
1	-	-	N	\$0.00	\$0.00	\$0.00	\$550.00	\$0.00	\$0.00	\$550.00
2	1,316	-	N	\$11,844.00	\$0.00	\$0.00	\$550.00	\$1,200.00	\$1,100.00	\$14,694.00
3	1,064	267	N	\$9,576.00	\$480.60	\$0.00	\$550.00	\$1,200.00	\$1,100.00	\$12,906.60
4	4,930	2,248	Y	\$44,370.00	\$4,046.40	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$52,266.40
5	5,056	4,158	Y	\$75,840.00	\$12,474.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$92,164.00
6	8,706	14,910	Y	\$78,354.00	\$26,838.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$109,042.00
7	4,561	7,382	Y	\$68,415.00	\$22,146.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$94,411.00
8	10,826	6,671	Y	\$162,390.00	\$20,013.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$186,253.00
9	2,239	1,779	Y	\$33,585.00	\$5,337.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$42,772.00
10	7,853	2,591	Y	\$70,677.00	\$4,663.80	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$79,190.80
11	2,752	842	N	\$24,768.00	\$1,515.60	\$0.00	\$550.00	\$1,200.00	\$1,100.00	\$29,133.60
12	2,427	1,336	N	\$21,843.00	\$2,404.80	\$0.00	\$550.00	\$1,200.00	\$1,100.00	\$27,097.80
13	1,075	2,070	Y	\$9,675.00	\$3,726.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$17,251.00
14	-	1,499	N	\$0.00	\$2,698.20	\$0.00	\$550.00	\$1,200.00	\$1,100.00	\$5,548.20
15	-	-	N	\$0.00	\$0.00	\$0.00	\$550.00	\$0.00	\$0.00	\$550.00
16	1,738	1,035	Y	\$15,642.00	\$1,863.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$21,355.00
17	1,397	2,175	Y	\$12,573.00	\$3,915.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$20,338.00
18	2,562	3,152	Y	\$23,058.00	\$5,673.60	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$32,581.60
19	963	-	Y	\$8,667.00	\$0.00	\$1,000.00	\$550.00	\$1,200.00	\$1,100.00	\$12,517.00
<b>TOTAL:</b>										<b>\$850,622.00</b>
<b>10% Contingency:</b>										<b>\$85,062.20</b>
<b>Total:</b>										<b>\$935,684.20</b>

Assumptions:

TCE in place for 2 years

Corner Parcels based on a value of \$15.00/SF

Other Parcels based on a value of \$9.00/SF

Values based on 2016 Cherokee County Assessors Office

Driveway Easements are a lump sum

Title Work, Appraisal and Acquisition costs based upon current ROW contracts



**Cherokee County Government**

Roadway Capital Program Management

1130 Bluffs Parkway

Canton, GA 30114

678-493-6077

Fax 678-493-6088

September 30, 2016

Mr. Cedric D. Clark, Project Manager  
Georgia Department of Transportation  
Office of Program Delivery  
600 West Peachtree Street  
Suite 1550  
Atlanta, Georgia 30308

Re: SR 140 at East Cherokee Drive Operational Improvements Project  
PI # 0013368  
Utility Certification

Dear Mr. Clark:

Please be advised that Cherokee County is aware that it will be responsible for all utility relocations, conflicts and costs associated with the utilities on this project. All reimbursable utility costs will be paid for by Cherokee County.

Currently the County is aware of one reimbursable utility cost – Georgia Power Company, in the amount of \$286,915.00. A copy of that draft relocation agreement is attached for your records.

Thank you for your help on this matter, if we can be of further assistance, please do not hesitate to contact us at 679-493-6077.

Sincerely,

Geoffrey E. Morton, P.E.  
County Engineer

Attachment

Cc: Barry K. Tarver  
Glenn Bowman, AMEC  
Jun B. Birnkammer, District 6 Utilities Engineer

**TRAFFIC EVALUATION  
FOR  
SR 140 (HICKORY FLAT HWY) @ E CHEROKEE DRIVE  
PLANNED IMPROVEMENT PROJECT**

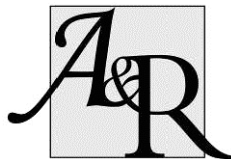
**CHEROKEE COUNTY, GA**



***Prepared for:***

*Cherokee County  
Capital Program Management  
1130 Bluff's Parkway  
Canton, GA 30114*

***Prepared By:***



**A&R Engineering Inc.**

2160 Kingston Court, Suite O  
Marietta, GA 30067  
Tel: (770) 690-9255 Fax: (770) 690-9210  
[www.areng.com](http://www.areng.com)

October 03, 2016  
A & R Project # 16-093

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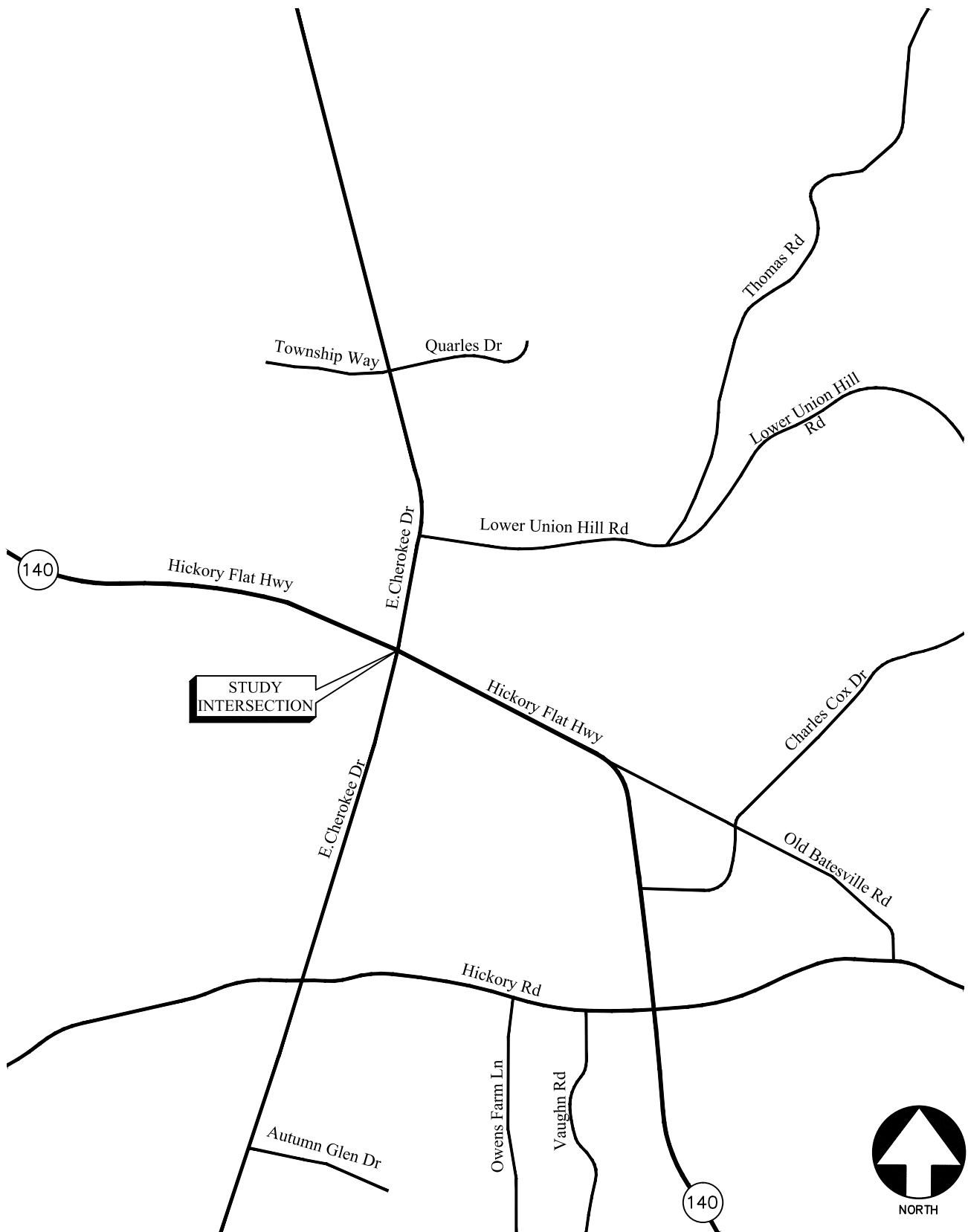
# INTRODUCTION

The purpose of this study is to evaluate the traffic impact that will result from the planned improvement project at the intersection of SR 140 (Hickory Flat Road) at E. Cherokee Drive in Cherokee County, Georgia. The traffic analysis evaluates the current operations compared to the future conditions with the planned improvement project. The proposed improvement consists of:

- Providing separate right turn lanes for the northbound, southbound, and eastbound approaches
- Lengthening the westbound left turn bay



The AM and PM peak hours have been analyzed in this study. This study includes the evaluation of traffic operations at the intersection of SR 140 (Hickory Flat Road) at E. Cherokee Drive. The location of the study network and the surrounding roadways is shown in Figure 1.



LOCATION

FIGURE 1

A&R Engineering Inc.

## EXISTING FACILITIES / CONDITIONS

### Roadway Facilities

The following is a brief description of each of the roadway facilities located in proximity to the site:

#### ***SR 140 (Hickory Flat Road)***

SR 140 is an east-west, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID 0570110 & 20570108) indicate that the daily traffic volume on SR 140 is 16,800 vehicles per day east of E. Cherokee Drive and 14,900 vehicles per day west of E. Cherokee Drive.

#### ***E. Cherokee Drive***

E. Cherokee Drive is a north-south, two-lane, undivided roadway with a posted speed limit of 45 mph in the vicinity of the site. GDOT traffic counts (Station ID 0570169 & 0570167) indicate that the daily traffic volume on E. Cherokee Drive is 8,540 vehicles per day north of SR 140 (Hickory Flat Road) and 10,000 vehicles per day south of SR 140 (Hickory Flat Road).

# STUDY METHODOLOGY

In this study, the methodology used for evaluating traffic operations at subject intersection is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2010 edition (HCM 2010). Synchro software, which utilizes the HCM 2010 methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of signalized intersections.

## Signalized Intersections

For signalized intersections, it is necessary to evaluate both capacity and level-of-service in order to evaluate the overall operation of the intersection. The capacity analysis of an intersection is performed by comparing the volume of traffic using the various lane groups at the intersection to the capacity of those lane groups. This results in a volume/capacity (v/c) ratio for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic has exceeded the capacity available, resulting in a temporary excess of demand. Although the capacity of the entire intersection is not defined, a composite v/c ratio for the sum of the critical lane groups within the intersection is computed. This composite v/c ratio is an indication of the overall intersection sufficiency.

Level-of-service for a signalized intersection is defined in terms of average controlled delay per vehicle, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for signalized intersections, based on average controlled delay, are shown in Table 2. Level-of-service "A" indicates operations with very low controlled delay, while level-of-service "F" describes operations with extremely high average controlled delay. Level-of-service "E" is typically considered to be the limit of acceptable delay, and level-of-service "F" is considered unacceptable by most drivers.

TABLE 1 - LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS	
Level-of-service	Average Control Delay (sec)
A	$\leq 10$
B	$> 10$ and $\leq 20$
C	$> 20$ and $\leq 35$
D	$> 35$ and $\leq 55$
E	$> 55$ and $\leq 80$
F	$> 80$

Source: 2010 Highway Capacity Manual

# EXISTING TRAFFIC ANALYSIS

Existing traffic counts and intersection geometric data were obtained at the intersections at the study intersection. Turning movement counts were collected on Tuesday, August 2<sup>nd</sup> 2016. All turning movement counts included truck traffic and were recorded during the AM and PM peak hours between 7:00am to 9:00am and 4:00pm to 6:00pm, respectively. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2. In addition to the turning movement counts, 24-hour classification tube counts were also collected on all approaches to the intersection on same day (Tuesday, August 2<sup>nd</sup>, 2016).

## Existing Traffic Operations

Existing traffic operations were analyzed at the study intersections in accordance with the HCM methodology. In addition, a queue length analysis was also performed. The results of the analyses are shown in Tables 2 and 3. The existing traffic control and lane geometry for the intersections are shown in Figure 3.

**TABLE 2 - EXISTING INTERSECTION OPERATIONS**

Intersection		Traffic Control	AM Peak Hour	PM Peak Hour
			LOS (Delay)	LOS (Delay)
1	<b><u>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</u></b>	Signalized	<b><u>E (57.9)</u></b>	<b><u>E (52.3)</u></b>
	-Eastbound (SR 140)		D (43.3)	D (39.3)
	-Westbound (SR 140)		C (23.8)	D (48.6)
	-Northbound (E. Cherokee Dr)		E (71.3)	E (59.4)
	-Southbound (E. Cherokee Dr)		F (96.1)	E (65.4)

**TABLE 3 - EXISTING INTERSECTION QUEUES**

Intersection		Storage	AM	PM
1	<b><u>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</u></b>			
	-Eastbound Left	250	80	143
	-Eastbound Through/Right	-	1,040	678
	-Westbound Left	85	68	75
	-Westbound Through	-	315	913
	-Westbound Right	150	68	120
	-Northbound Left	175	220	248
	-Northbound Through/Right	NA	400	563
	-Southbound Left	300	358	263
	-Southbound Through/Right	NA	803	618

The result of existing traffic operations analysis indicates that the study intersection is operating at level-of-service "E" in both the morning and evening peak periods.

## Accident Data

Accident reports were obtained for the most recent three years (2013-2015). The data shows the number, manner, and severity of collisions at the study intersections. Notably, some of the accident reports cite the intersection as a reference point and may have rather occurred “near” the intersection.

TABLE 4 – ACCIDENT DATA				
Manner of Collision (SR 140 @ E. Cherokee Drive)	2013	2014	2015	Grand Total
Angle	15	16	22	53
Head On	3	0	0	3
Not A Collision with Motor Vehicle	4	3	1	8
Rear End	23	16	21	60
Sideswipe-Opposite Direction	1	1	1	3
Sideswipe-Same Direction	0	3	3	6
<b>Grand Total</b>	<b>46</b>	<b>39</b>	<b>48</b>	<b>133</b>
<b>Injuries</b>	<b>7</b>	<b>6</b>	<b>21</b>	<b>34</b>
<b>Fatalities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Traffic Diagrams

Traffic Diagrams for Existing, Open Year 2018 and Design Year 2028 are given in Figures 2, 3 and 4. Traffic Diagrams for Existing, Open Year 2018 and Design Year 2028 are given in Figures 5, 6 and 7 below.

[illegible]







E.Cherokee Dr



4920

4920



591

2460

9020

Hickory Flat Hwy (SR 104)

323

9020

6242

2455

966

6698

8520

Hickory Flat Hwy (SR 104)

855

8520

3635

1731

409

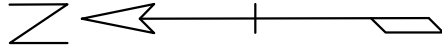
5770

5770



E.Cherokee Dr

Trucks	1.5%
--------	------



OPEN YEAR 2018  
AADT'S

A&R Engineering Inc.  
2188 Highway 104, Suite 10  
Burlington, ON L7R 4B1  
Tel: (779) 896-6210 Fax: (779) 896-6210  
www.aar-eng.com



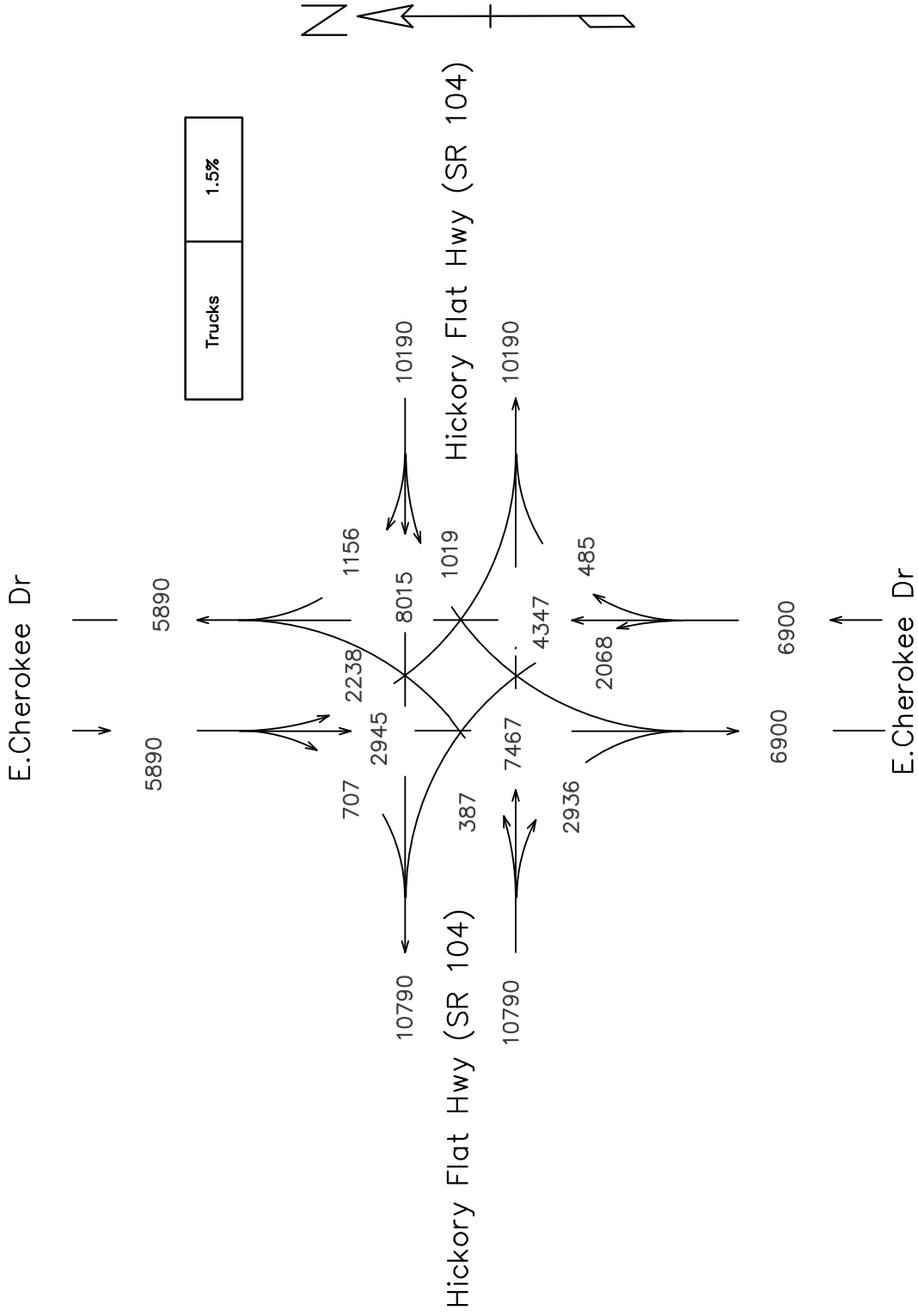
REVISIONS

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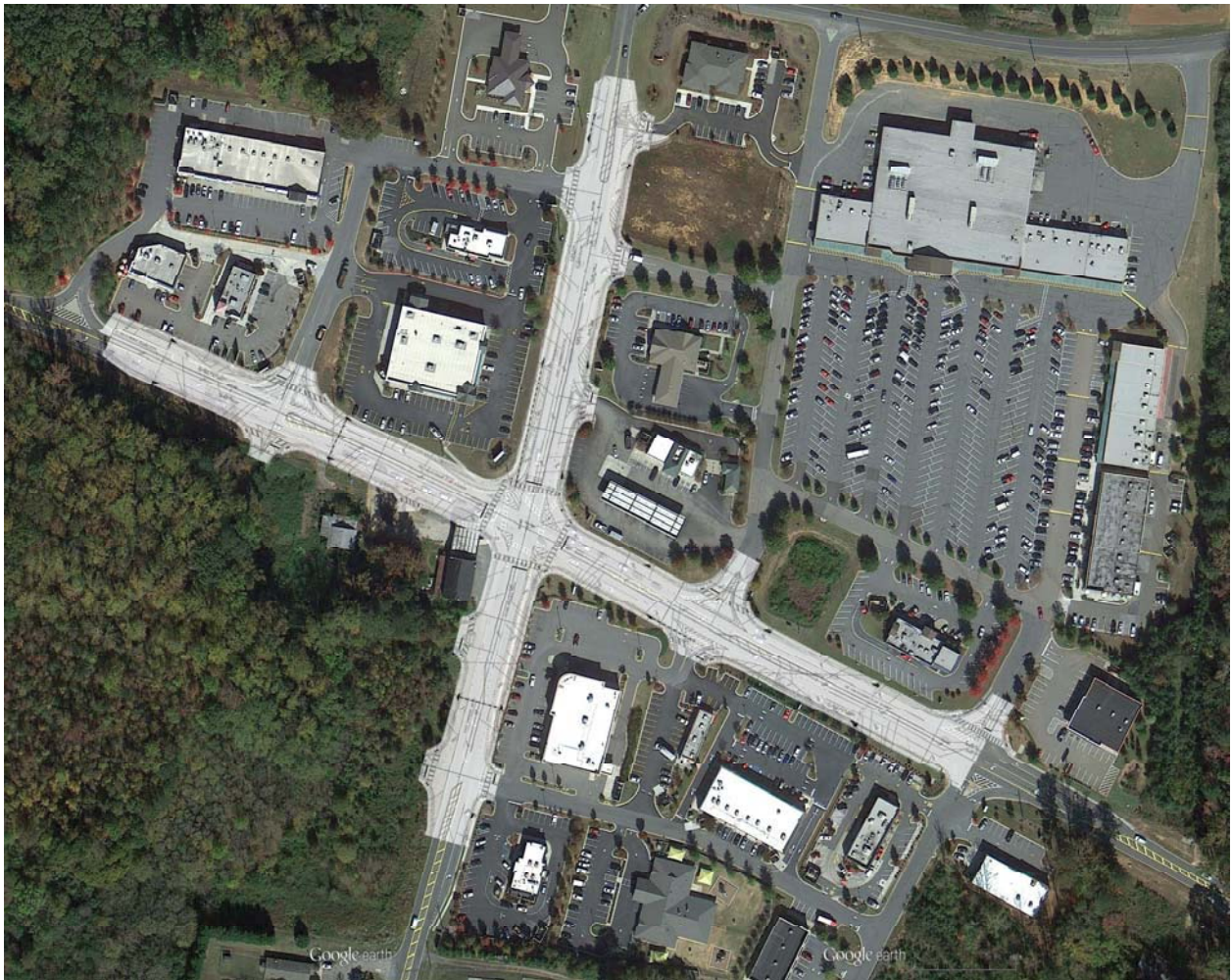
# FUTURE TRAFFIC ANALYSIS

The future traffic operations are analyzed for the “Build” and “No-Build” conditions. This provides a basis of reference for determining both the contribution of the project to overall traffic conditions and capacity for passing traffic. The Open Year and The Design year for this analysis is 2018 and 2028 respectively. An annual growth rate of 1.5% was used in establishing the volume of traffic on the roadway in the future conditions.

## Planned Improvements

Intersection improvement is planned at SR 140 (Hickory Flat Road) at E. Cherokee Drive, Cherokee County, Georgia. The improvement plans consist of:

- Adding a separate right turn lane for the northbound approach (300 feet storage length)
- Adding a separate right turn lane for the southbound approach (400 feet storage length)
- Adding a separate right turn lane for the eastbound approach (250 feet storage length)
- Lengthening the westbound left turn bay (from 85 ft to 250 ft)



*Figure 8 – Proposed Improvement Project*

## Future Traffic Operations

The results of the “No-Build” and “Build” operations for the ‘Open Year 2018’ and ‘Design Year 2028’ analyses are shown in Tables 5, 6, 7 and 8.

**TABLE 5 - FUTURE “OPEN YEAR 2018” INTERSECTION OPERATIONS**

Intersection		No-Build		Build	
		AM Peak	PM Peak	AM Peak	PM Peak
<b>1</b>	<b><u>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</u></b>	<b><u>E (54.0)</u></b>	<b><u>D (53.5)</u></b>	<b><u>C (34.3)</u></b>	<b><u>D (46.4)</u></b>
	-Eastbound (SR 140)	E (64.4)	D (42.8)	C (30.5)	C (31.7)
	-Westbound (SR 140)	C (27.4)	E (56.5)	C (23.6)	D (46.5)
	-Northbound (E. Cherokee Dr)	D (52.1)	E (58.1)	D (42.4)	E (58.6)
	-Southbound (E. Cherokee Dr)	E (58.1)	E (57.8)	D(41.8)	D (49.5)

**TABLE 6 - FUTURE “OPEN YEAR 2018” INTERSECTION QUEUES**

Intersection		Available Storage		No-Build		Build	
		No-Build	Build	AM	PM	AM	PM
<b>1</b>	<b><u>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</u></b>						
	-Eastbound Left	250	250	85	160	73	145
	-Eastbound Through	-	-	1,668	698	570	455
	-Eastbound Right	NA	250	-	-	225*	167*
	-Westbound Left	85	250	73	75	50	98
	-Westbound Through	-	-	335	973	295	918
	-Westbound Right	150	150	73	123	63*	115*
	-Northbound Left	175	175	203	235	165	238
	-Northbound Through	-	-	340	570	253	550
	-Northbound Right	NA	300	-	-	43*	30*
	-Southbound Left	300	300	308	253	250	273
	-Southbound Through	-	-	503	563	347	385
	-Southbound Right	NA	400	-	-	50*	173*

**TABLE 7 - FUTURE “DESIGN YEAR 2028” INTERSECTION OPERATIONS**

Intersection		No-Build		Build	
		AM Peak	PM Peak	AM Peak	PM Peak
<b>1</b>	<b><u>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</u></b>	<b><u>F(95.6)</u></b>	<b><u>F(100.6)</u></b>	<b><u>D (46.6)</u></b>	<b><u>F (83.2)</u></b>
	-Eastbound (SR 140)	F(152.4)	E(78.3)	D (43.3)	D (47.3)
	-Westbound (SR 140)	C (31.9)	F(149.1)	C (28.5)	F(111.7)
	-Northbound (E. Cherokee Dr)	E (58.5)	F (83.7)	D (52.2)	F (85.5)
	-Southbound (E. Cherokee Dr)	E (76.6)	E(79.3)	E (60.7)	E (74.7)

\*HCM 2010 does not give queue lengths for yield controlled right turn movements. Queue lengths reported were obtained by modeling right turn movements as signalized (no channelized RT movements). Therefore, the queue lengths reported are longer than actual queue lengths for ‘yield’ controlled right turns.

**TABLE 8 - FUTURE "DESIGN YEAR 2028" INTERSECTION QUEUES**

Intersection		Available Storage		No-Build		Build	
		No-Build	Build	AM	PM	AM	PM
1	<b><u>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</u></b>						
	-Eastbound Left	250	250	113	348	105	338
	-Eastbound Through	-	-	2,578	1,088	878	620
	-Eastbound Right	NA	250	-	-	295*	220*
	-Westbound Left	85	250	100	115	73	143
	-Westbound Through	-	-	430	2,263	405	2,148
	-Westbound Right	150	150	95	173	88*	165*
	-Northbound Left	175	175	250	315	232	313
	-Northbound Through	-	-	428	1,090	352	1,073
	-Northbound Right	NA	300	-	-	55*	40*
	-Southbound Left	300	300	400	428	365	495
	-Southbound Through	-	-	683	773	522	515
	-Southbound Right	NA	400	-	-	70*	220*

## Findings

After implementing the proposed improvements, turn lane storage capacity and intersection capacity will increase. Therefore, the intersection will operate at improved level-of-service in both morning and evening peak periods in the Open Year 2018 and the Design Year 2028. Reduction in delay are shown in Tables 9 and 10, respectively.

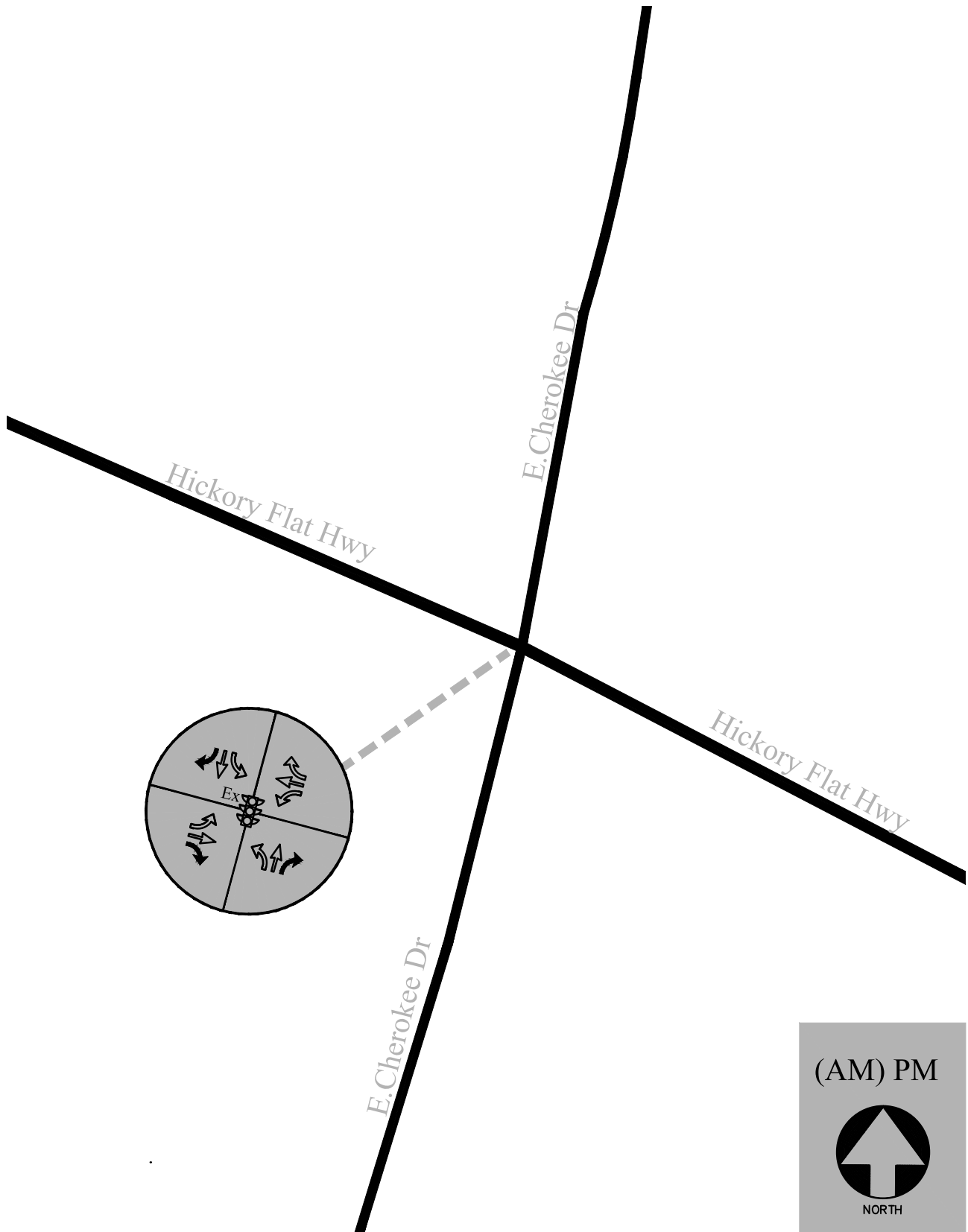
**TABLE 9 - REDUCTION IN DELAY FOR OPEN YEAR 2018 BUILD CONDITIONS**

Intersection and Approach	No-Build		Build		Reductions in Delay	
	AM	PM	AM	PM	AM	PM
<b>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</b>	<b><u>E (54.0)</u></b>	<b><u>D (53.5)</u></b>	<b><u>C (34.3)</u></b>	<b><u>D (46.4)</u></b>	<b>-36%</b>	<b>-13%</b>
-Eastbound (SR 140)	E (64.4)	D (42.8)	C (30.5)	C (31.7)	-53%	-26%
-Westbound (SR 140)	C (27.4)	E (56.5)	C (23.6)	D (46.5)	-14%	-18%
-Northbound (E Cherokee Dr)	D (52.1)	E (58.1)	D (42.4)	E (58.6)	-19%	+1%
-Southbound (E Cherokee Dr)	E (58.1)	E (57.8)	D(41.8)	D (49.5)	-28%	-14%

**TABLE 10 - REDUCTION IN DELAY FOR DESIGN YEAR 2028 BUILD CONDITIONS**

Intersection and Approach	No-Build		Build		Reductions in Delay	
	AM	PM	AM	PM	AM	PM
<b>SR 140 (Hickory Flat Hwy) @ E Cherokee Dr</b>	<b>F (95.6)</b>	<b>F (100.6)</b>	<b>D (46.6)</b>	<b>E (83.2)</b>	<b>-51%</b>	<b>-17%</b>
-Eastbound (SR 140)	F(152.4)	E(78.3)	D (43.3)	D (47.3)	-72%	-40%
-Westbound (SR 140)	C (31.9)	F(149.1)	C (28.5)	F(111.7)	-11%	-25%
-Northbound (E Cherokee Dr)	E (58.5)	F (83.7)	D (52.2)	F (85.5)	-11%	+2%
-Southbound (E Cherokee Dr)	E (76.6)	E(79.3)	E (60.7)	E (74.7)	-21%	-6%

The future improved traffic control and lane geometry are shown graphically in Figure 8.



FUTURE IMPROVED TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 8

A&R Engineering Inc.

## CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the planned improvement at intersection of SR 140 (Hickory Flat Road) at E. Cherokee Drive in Cherokee County, Georgia. The proposed improvement consists of:

- Adding a separate right turn lane for the northbound approach (300 feet storage length)
- Adding a separate right turn lane for the southbound approach (400 feet storage length)
- Adding a separate right turn lane for the eastbound approach (250 feet storage length)
- Lengthening the westbound left turn bay (from 85 ft to 250 ft)

For the purpose of this analysis, the “Build” (improved) and “No-Build” (unimproved) conditions were evaluated for Existing conditions, Open Year 2018 and Design Year 2028. An annual growth rate of 1.5% was utilized in determining future traffic volumes at the intersection. The results of the analysis are summarized below. Further details are found in the analyses in the report document and the Appendix:

- The overall delay at the intersection will be reduced by 36% in the morning peak hour and 13% in the evening peak hour for the Open Year 2018 and the overall delay will be reduced by 51% in the morning peak hour and 17% in the evening peak hour. This is attributed to the ability of the signal to discharge higher volumes of traffic during periods of heavy congestion.
- The queuing for the through movements will decrease due to separate stacking provided for the right turns at the intersection. This is especially true for the eastbound movement in the morning peak, with a more overall reduction of queues in the evening peak.

## **Appendix**

## **Existing Intersection Traffic Counts**

# Reliable Traffic Data Services, LLC

Tel: (770) 578-8158 | Fax: (770) 578-8159  
info@reliabletraffic.org | www.reliabletraffic.org

TMC Data  
Hickory Flat Hwy (SR140) @  
E Cherokee Dr  
7-9am | 4-6pm

File Name : 38860001  
Site Code : 38860001  
Start Date : 8/2/2016  
Page No : 1

## Groups Printed- Passenger Vehicles - Trucks

	E Cherokee Dr Northbound					E Cherokee Dr Southbound					Hickory Flat Hwy (SR140) Eastbound					Hickory Flat Hwy (SR140) Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	17	42	2	0	61	38	55	8	0	101	13	165	22	0	200	5	48	12	0	65	427
07:15 AM	29	45	10	0	84	34	66	4	0	104	20	147	49	0	216	6	68	18	0	92	496
07:30 AM	36	51	5	0	92	59	74	8	0	141	14	115	61	0	190	14	72	11	0	97	520
07:45 AM	22	41	7	0	70	48	72	14	0	134	24	137	43	0	204	19	82	16	0	117	525
Total	104	179	24	0	307	179	267	34	0	480	71	564	175	0	810	44	270	57	0	371	1968
08:00 AM	33	36	5	0	74	46	53	10	0	109	21	139	34	0	194	14	79	13	0	106	483
08:15 AM	40	35	11	0	86	60	43	10	0	113	15	137	31	0	183	11	68	15	0	94	476
08:30 AM	37	45	9	0	91	37	49	8	0	94	18	119	30	0	167	13	47	17	0	77	429
08:45 AM	27	44	9	0	80	34	43	13	0	90	24	148	23	0	195	7	67	12	0	86	451
Total	137	160	34	0	331	177	188	41	0	406	78	543	118	0	739	45	261	57	0	363	1839
*** BREAK ***																					
04:00 PM	43	69	6	0	118	31	48	18	0	97	24	78	16	0	118	16	130	20	0	166	499
04:15 PM	62	67	3	0	132	38	51	12	0	101	18	64	18	0	100	12	138	16	0	166	499
04:30 PM	36	80	6	0	122	34	49	15	0	98	22	100	16	0	138	18	155	15	0	188	546
04:45 PM	32	72	2	0	106	30	48	14	0	92	23	94	24	0	141	17	163	32	0	212	551
Total	173	288	17	0	478	133	196	59	0	388	87	336	74	0	497	63	586	83	0	732	2095
05:00 PM	46	91	3	0	140	42	68	17	0	127	34	80	19	0	133	26	141	16	0	183	583
05:15 PM	47	70	2	0	119	41	48	14	0	103	23	101	38	0	162	13	176	15	0	204	588
05:30 PM	33	72	8	0	113	38	70	30	0	138	20	106	27	0	153	11	171	27	0	209	613
05:45 PM	38	76	4	0	118	51	63	19	0	133	24	79	28	0	131	14	144	27	0	185	567
Total	164	309	17	0	490	172	249	80	0	501	101	366	112	0	579	64	632	85	0	781	2351
Grand Total	578	936	92	0	1606	661	900	214	0	1775	337	1809	479	0	2625	216	1749	282	0	2247	8253
Apprch %	36	58.3	5.7	0		37.2	50.7	12.1	0		12.8	68.9	18.2	0		9.6	77.8	12.6	0		
Total %	7	11.3	1.1	0	19.5	8	10.9	2.6	0	21.5	4.1	21.9	5.8	0	31.8	2.6	21.2	3.4	0	27.2	
Passenger Vehicles	576	928	91	0	1595	660	885	213	0	1758	333	1781	477	0	2591	213	1712	278	0	2203	8147
% Passenger Vehicles	99.7	99.1	98.9	0	99.3	99.8	98.3	99.5	0	99	98.8	98.5	99.6	0	98.7	98.6	97.9	98.6	0	98	98.7
Trucks	2	8	1	0	11	1	15	1	0	17	4	28	2	0	34	3	37	4	0	44	106
% Trucks	0.3	0.9	1.1	0	0.7	0.2	1.7	0.5	0	1	1.2	1.5	0.4	0	1.3	1.4	2.1	1.4	0	2	1.3

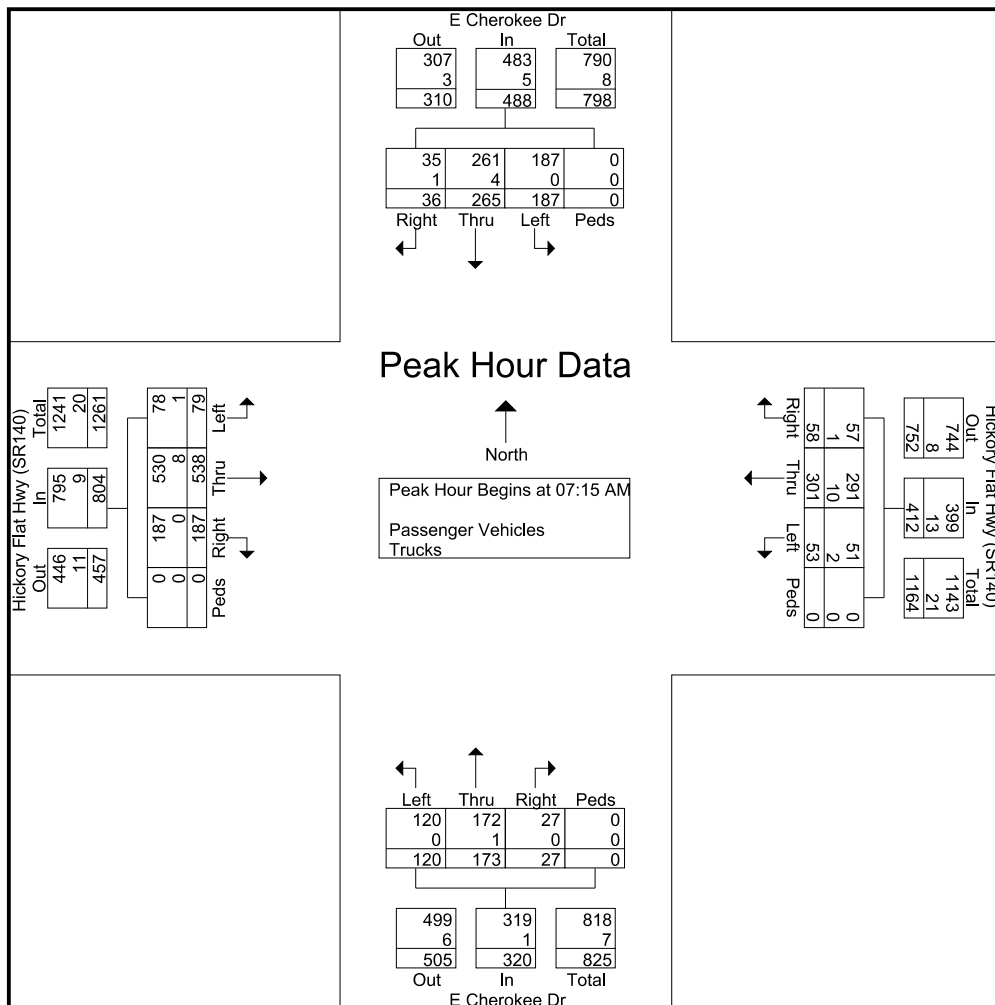
# Reliable Traffic Data Services, LLC

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TMC Data  
Hickory Flat Hwy (SR140) @  
E Cherokee Dr  
7-9am | 4-6pm

File Name : 38860001  
Site Code : 38860001  
Start Date : 8/2/2016  
Page No : 2

	E Cherokee Dr Northbound					E Cherokee Dr Southbound					Hickory Flat Hwy (SR140) Eastbound					Hickory Flat Hwy (SR140) Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	29	45	10	0	84	34	66	4	0	104	20	147	49	0	216	6	68	18	0	92	496
07:30 AM	36	51	5	0	92	59	74	8	0	141	14	115	61	0	190	14	72	11	0	97	520
07:45 AM	22	41	7	0	70	48	72	14	0	134	24	137	43	0	204	19	82	16	0	117	525
08:00 AM	33	36	5	0	74	46	53	10	0	109	21	139	34	0	194	14	79	13	0	106	483
Total Volume	120	173	27	0	320	187	265	36	0	488	79	538	187	0	804	53	301	58	0	412	2024
% App. Total	37.5	54.1	8.4	0		38.3	54.3	7.4	0		9.8	66.9	23.3	0		12.9	73.1	14.1	0		
PHF	.833	.848	.675	.000	.870	.792	.895	.643	.000	.865	.823	.915	.766	.000	.931	.697	.918	.806	.000	.880	.964
Passenger Vehicles	120	172	27	0	319	187	261	35	0	483	78	530	187	0	795	51	291	57	0	399	1996
% Passenger Vehicles	100	99.4	100	0	99.7	100	98.5	97.2	0	99.0	98.7	98.5	100	0	98.9	96.2	96.7	98.3	0	96.8	98.6
Trucks	0	1	0	0	1	0	4	1	0	5	1	8	0	0	9	2	10	1	0	13	28
% Trucks	0	0.6	0	0	0.3	0	1.5	2.8	0	1.0	1.3	1.5	0	0	1.1	3.8	3.3	1.7	0	3.2	1.4



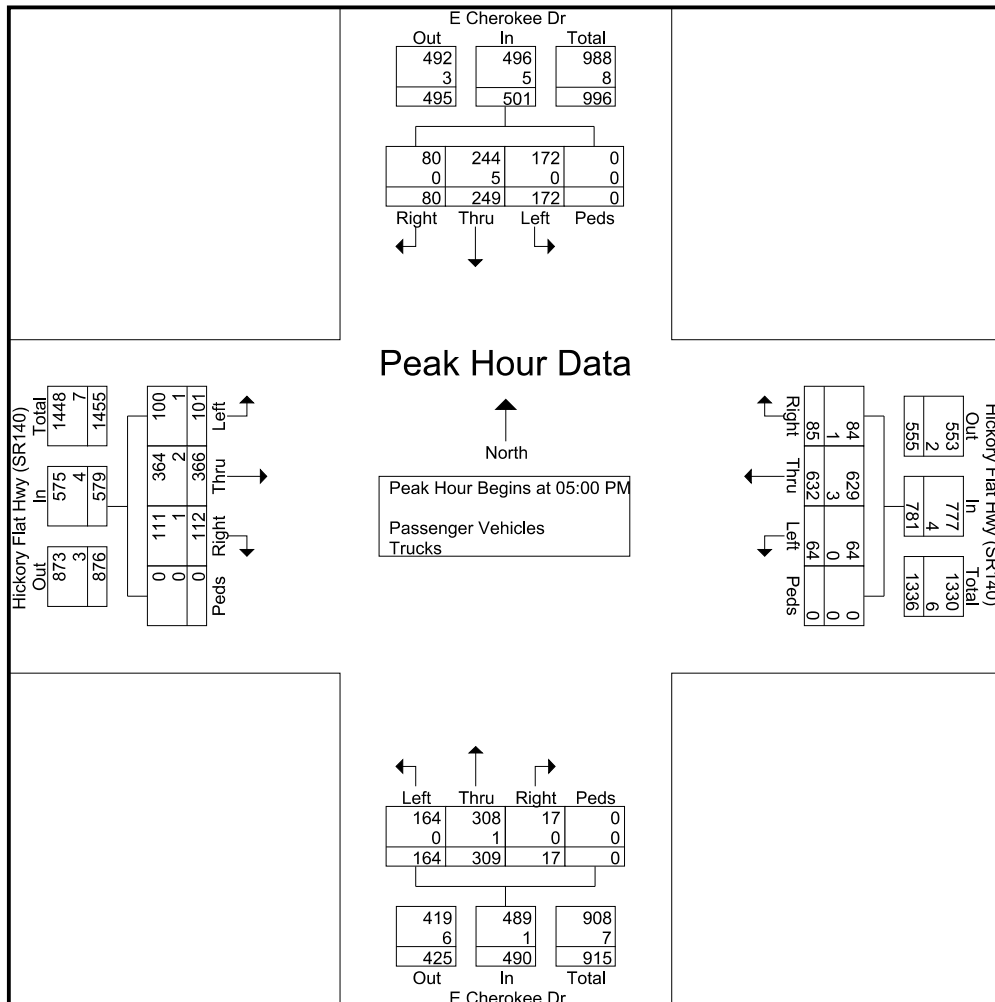
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TMC Data  
Hickory Flat Hwy (SR140) @  
E Cherokee Dr  
7-9am | 4-6pm

File Name : 38860001  
Site Code : 38860001  
Start Date : 8/2/2016  
Page No : 3

	E Cherokee Dr Northbound					E Cherokee Dr Southbound					Hickory Flat Hwy (SR140) Eastbound					Hickory Flat Hwy (SR140) Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	46	91	3	0	140	42	68	17	0	127	34	80	19	0	133	26	141	16	0	183	583
05:15 PM	47	70	2	0	119	41	48	14	0	103	23	101	38	0	162	13	176	15	0	204	588
05:30 PM	33	72	8	0	113	38	70	30	0	138	20	106	27	0	153	11	171	27	0	209	613
05:45 PM	38	76	4	0	118	51	63	19	0	133	24	79	28	0	131	14	144	27	0	185	567
Total Volume	164	309	17	0	490	172	249	80	0	501	101	366	112	0	579	64	632	85	0	781	2351
% App. Total	33.5	63.1	3.5	0		34.3	49.7	16	0		17.4	63.2	19.3	0		8.2	80.9	10.9	0		
PHF	.872	.849	.531	.000	.875	.843	.889	.667	.000	.908	.743	.863	.737	.000	.894	.615	.898	.787	.000	.934	.959
Passenger Vehicles	164	308	17	0	489	172	244	80	0	496	100	364	111	0	575	64	629	84	0	777	2337
% Passenger Vehicles	100	99.7	100	0	99.8	100	98.0	100	0	99.0	99.0	99.5	99.1	0	99.3	100	99.5	98.8	0	99.5	99.4
Trucks	0	1	0	0	1	0	5	0	0	5	1	2	1	0	4	0	3	1	0	4	14
% Trucks	0	0.3	0	0	0.2	0	2.0	0	0	1.0	1.0	0.5	0.9	0	0.7	0	0.5	1.2	0	0.5	0.6



## **Accident Data**

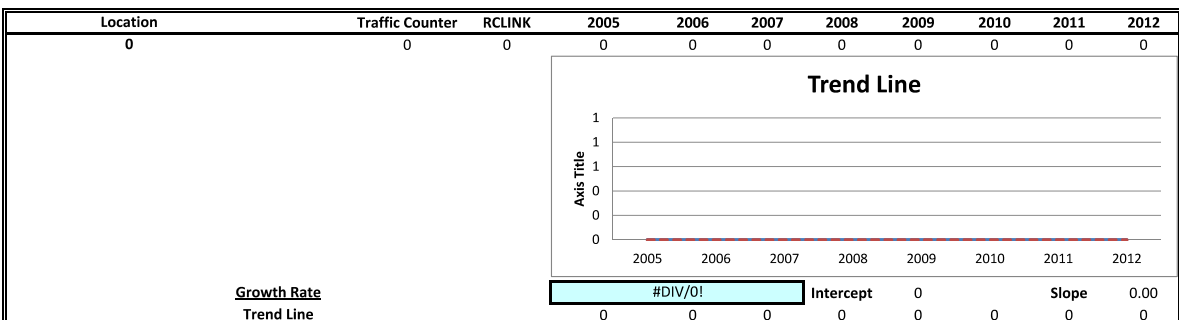
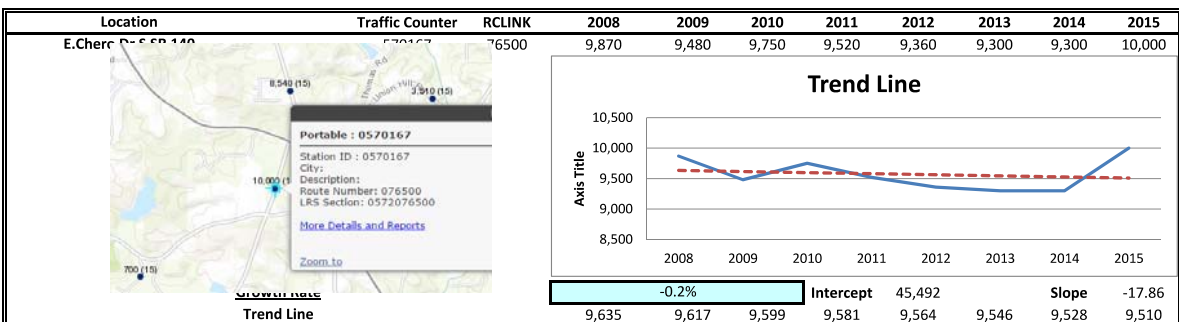
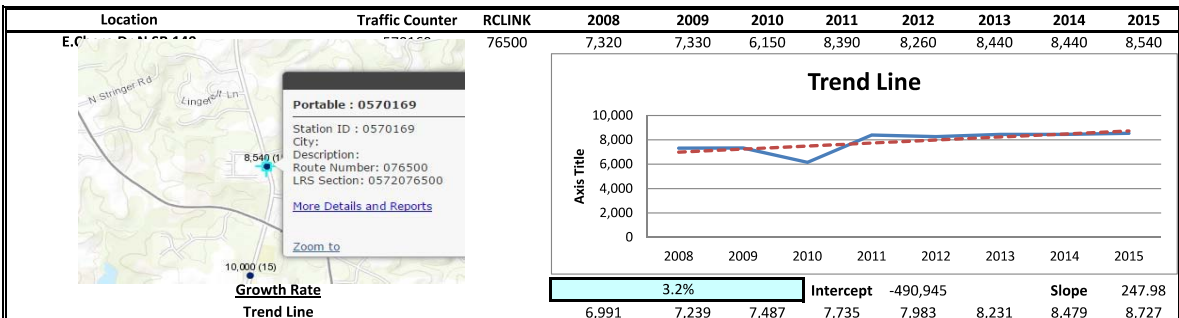
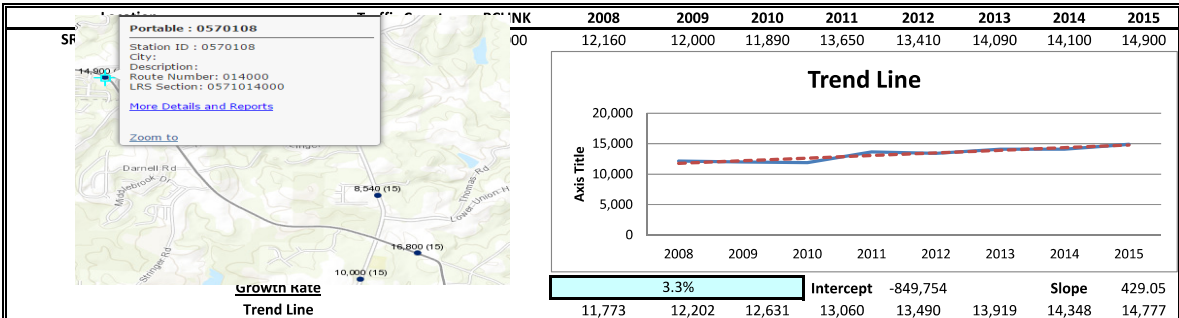
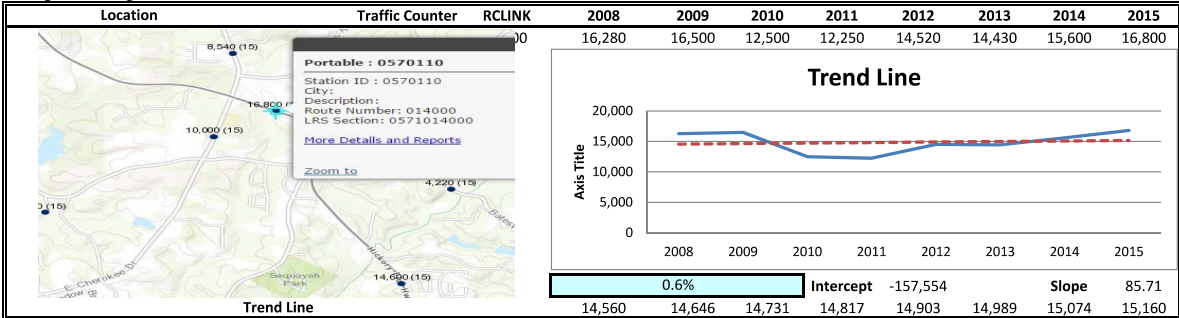
AccidentNo	AccidentNumber	Date	Time	County	Route	Mileto IntersectingRoute	Ramps	Distance	Direction	Injury	Fatalit	MannerOfCollision	Location	Oltime	FirstHarmfulEvent	Light	Surface	DirVeh1	DirVeh2	MuvVeh1
4708211	4708211	1/19/2014	14:04:00	CHEROKEE	HICKORY FLAT HWY	5.98 E CHEROKEE DR	0	0	0	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	Northwest	Southeast	Turning Left
4725140	4725140	4/26/2014	17:42:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Lighted	Dry	Northwest	West	Turning Left
4858844	4858844	5/17/2014	19:36:00	CHEROKEE	HICKORY FLAT HWY	0 E CHEROKEE DR	0	0	0	0	0	0 Angle	Off Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	South	Northwest	Backing
4923779	4923779	7/31/2014	12:39:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	1	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	South	Turning Left
4972080	4972080	9/9/2014	20:48:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	1	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Lighted	Dry	South	East	Turning Left
4977396	4977396	10/12/2014	8:36:00	CHEROKEE	HICKORY FLAT HWY	22.2 E CHEROKEE DR	0	800	South	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Parked Motor Vehicle	Daylight	Wet	Southeast	None	Backing
5022751	5022751	9/28/2014	19:05:00	CHEROKEE	HICKORY FLAT HWY	22.08 E CHEROKEE DR	0	0	0	0	0	0 Angle	Off Roadway	Parked Motor Vehicle	Parked Motor Vehicle	Daylight	Dry	None	None	Backing
5102663	5102663	12/20/2014	23:19:00	CHEROKEE	HICKORY FLAT HWY	0 E CHEROKEE DR	0	0	0	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Lighted	Wet	South	East	Straight
5103975	5103975	1/27/2015	20:47:00	CHEROKEE	HICKORY FLAT HWY	0 E CHEROKEE DR	0	0	0	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Not Lighted	Wet	South	East	Passing
5126279	5126279	1/12/2015	20:47:00	CHEROKEE	HICKORY FLAT HWY	22.2 E CHEROKEE DR	0	0	0	0	0	0 Angle	Off Roadway	Parked Motor Vehicle	Parked Motor Vehicle	Dark-Not Lighted	Wet	North	West	Backing
5136682	5136682	1/22/2015	12:00:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	0	0 Angle	Off Roadway	Parked Motor Vehicle	Parked Motor Vehicle	Daylight	Dry	West	Northwest	Parked
5173206	5173206	2/10/2015	13:57:00	CHEROKEE	HICKORY FLAT HWY	22.08 E CHEROKEE DR	0	0	West	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	North	East	Making U-Turn
5173595	5173595	2/10/2015	17:47:00	CHEROKEE	HICKORY FLAT HWY	22.31 E CHEROKEE DR	0	0	1	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	Northwest	Southeast	Straight
5250285	5250285	4/23/2015	12:25:00	CHEROKEE	HICKORY FLAT HWY	22.2 E CHEROKEE DR	0	0	0	0	1	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Not Lighted	Wet	North	West	Straight
5261464	5261464	4/23/2015	00:08:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	1	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Wet	South	North	Turning Left
5362704	5362704	7/20/2015	19:06:00	CHEROKEE	HICKORY FLAT HWY	22.08 E CHEROKEE DR	0	0	0	0	1	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	North	Turning Left
5406868	5406868	8/27/2015	15:30:00	CHEROKEE	BALL GROUND HWY	0 E CHEROKEE DR	0	0	0	0	1	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	North	Turning Left
5418176	5418176	9/9/2015	15:45:00	CHEROKEE	HICKORY FLAT HWY	22.2 E CHEROKEE DR	0	200	North	3	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	North	Turning Left
5504843	5504843	11/9/2015	15:51:00	CHEROKEE	HICKORY FLAT HWY	5.87 E CHEROKEE DR	0	0	0	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Wet	South	West	Turning Left
5505785	5505785	11/10/2015	16:33:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	379	East	0	0	0 Angle	On Shoulder	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	Southeast	Straight
5525907	5525907	11/29/2015	19:00:00	CHEROKEE	HICKORY FLAT HWY	22.09 E CHEROKEE DR	0	0	0	0	0	0 Angle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Lighted	Dry	South	West	Turning Right
5031770	5031770	10/27/2014	17:00:00	CHEROKEE	E CHEROKEE DR	0 E CHEROKEE DR	0	0	0	0	0	0 Not A Collision with Motor Vehicle	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Other	East	West	Turning Left
5498382	5498382	11/5/2015	6:36:00	CHEROKEE	HICKORY FLAT HWY	22.2 E CHEROKEE DR	0	0	0	0	0	0 Not A Collision with Motor Vehicle	On Shoulder	Curb	Curb	Dark-Not Lighted	Wet	East	Southeast	Straight
4711426	4711426	1/22/2014	8:13:00	CHEROKEE	HICKORY FLAT HWY	21.93 E CHEROKEE DR	0	700	West	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	West	Turning Right
4736818	4736818	2/18/2014	16:07:00	CHEROKEE	HICKORY FLAT HWY	5.98 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	West	Straight
4746370	4746370	2/27/2014	18:29:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	West	Straight
4845435	4845435	5/14/2014	7:48:00	CHEROKEE	HICKORY FLAT HWY	22.08 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	East	Straight
4936996	4936996	8/13/2014	20:26:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	0	0 Rear End	Off Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	West	Backing
4977342	4977342	9/12/2014	11:50:00	CHEROKEE	HICKORY FLAT HWY	22.05 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	East	Straight
5006183	5006183	10/4/2014	8:41:00	CHEROKEE	HICKORY FLAT HWY	22.04 E CHEROKEE DR	0	0	3	0	0	0 Rear End	On Shoulder	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	East	Straight
5014031	5014031	10/11/2014	13:50:00	CHEROKEE	HICKORY FLAT HWY	5.98 E CHEROKEE DR	0	0	0	0	0	0 Rear End	Off Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	South	Straight
5060148	5060148	11/21/2014	16:30:00	CHEROKEE	HICKORY FLAT HWY	22.07 E CHEROKEE DR	0	0	West	0	0	0 Rear End	Off Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	West	Backing
5130700	5130700	1/15/2015	16:09:00	CHEROKEE	HICKORY FLAT HWY	5.98 E CHEROKEE DR	0	55	East	0	0	0 Rear End	Off Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Lighted	Wet	East	North	Backing
512597	512597	1/17/2015	12:03:00	CHEROKEE	HICKORY FLAT HWY	5.98 E CHEROKEE DR	0	0	0	0	0	0 Rear End	Off Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	Southeast	Northwest	Backing
5305687	5305687	5/27/2015	17:08:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	0	0	0	0 Rear End	Off Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	South	South	Backing
5338504	5338504	6/27/2015	16:54:00	CHEROKEE	HICKORY FLAT HWY	21.96 E CHEROKEE DR	0	300	North	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Wet	South	South	Straight
5368197	5368197	7/24/2015	12:46:00	CHEROKEE	HICKORY FLAT HWY	21.99 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	East	East	Straight
5387044	5387044	8/11/2015	17:56:00	CHEROKEE	HICKORY FLAT HWY	22.08 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	South	South	Turning Right
5403214	5403214	8/25/2015	18:08:00	CHEROKEE	HICKORY FLAT HWY	0 E CHEROKEE DR	0	0	West	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	West	Straight
5452819	5452819	10/2/2015	17:53:00	CHEROKEE	HICKORY FLAT HWY	5.98 E CHEROKEE DR	0	0	West	1	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Wet	West	West	Straight
5463365	5463365	10/9/2015	10:56:00	CHEROKEE	HICKORY FLAT HWY	22.06 E CHEROKEE DR	0	0	West	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	West	Straight
5466767	5466767	10/12/2015	18:10:00	CHEROKEE	HICKORY FLAT HWY	0.49 E CHEROKEE DR	0	0	West	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	West	West	Straight
5471826	5471826	10/16/2015	18:23:00	CHEROKEE	HICKORY FLAT HWY	22.31 E CHEROKEE DR	0	1338	East	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	North	North	Straight
5499907	5499907	11/5/2015	18:54:00	CHEROKEE	HICKORY FLAT HWY	22.16 E CHEROKEE DR	0	531	East	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Not Lighted	Wet	West	West	Straight
5506091	5506091	11/10/2015	18:51:00	CHEROKEE	HICKORY FLAT HWY	22.08 E CHEROKEE DR	0	300	East	1	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Lighted	Dry	West	West	Straight
5535778	5535778	12/12/2015	18:58:00	CHEROKEE	HICKORY FLAT HWY	0 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Dark-Not Lighted	Dry	West	West	Straight
5542188	5542188	12/8/2015	15:35:00	CHEROKEE	HICKORY FLAT HWY	0 E CHEROKEE DR	0	0	0	0	0	0 Rear End	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	Northwest	Northwest	Straight
5427992	5427992	9/18/2015	19:54:00	CHEROKEE	HICKORY FLAT HWY	22.1 E CHEROKEE DR	0	0	North	0	0	0 Sideswipe-Opposite Direction	On Roadway	Parked Motor Vehicle	Parked Motor Vehicle	Daylight	Dry	North	Northwest	Turning Right
4761799	4761799	3/14/2015	13:36:00	CHEROKEE	HICKORY FLAT HWY	22.03 E CHEROKEE DR	0	175	West	0	0	0 Sideswipe-Same Direction	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Dry	Southeast	Southeast	Changing Lanes
5328917	5328917	6/18/2015	16:03:00	CHEROKEE	HICKORY FLAT HWY	5.98 E CHEROKEE DR	0	0	0	0	0	0 Sideswipe-Same Direction	On Roadway	Motor Vehicle in Motion	Motor Vehicle in Motion	Daylight	Wet	West	West	Changing Lanes
5422076	5422076	9/11/2015	17:53:00	CHEROKEE	HICKORY FLAT HWY	5.97 E CHEROKEE DR	0	0	North	0	0	0 Sideswipe-Same Direction	On Roadway	Parked Motor Vehicle	Parked Motor Vehicle	Daylight	Dry	South	South	Turning Right

AccidentNo	AccidentNum	Date	Time	County	Route	Milelog	IntersectingRoute	Ramp	Dist	Direction	Injury	Fatal	MannerOfCollision	LocationOfImpact	FirstHarmfulEvent	Light	Surface	DirVeh1	MvnrVeh1
4726572	4726572	2/8/2014	20:44:00	CHEROKEE	E CHEROKEE DR	5.94	HICKORY FLAT HWY	0	0	0	0	0	Rear End	Off Roadway	Motor Vehicle in Motion	Dark-Lighted	Dry	West	Backing
4728757	4728757	2/10/2014	17:01:00	CHEROKEE	EAST CHEROKEE DR	5.9	HICKORY FLAT HWY	0	475	South	0	0	Sideswipe-Same Direction	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight
4755308	4755308	3/9/2014	16:44:00	CHEROKEE	EAST CHEROKEE DR	22.06	HICKORY FLAT HWY	0	-1	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	West	Straight
4772165	4772165	3/25/2014	17:54:00	CHEROKEE	E CHEROKEE DR	6.05	HICKORY FLAT HWY	0	0	0	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Turning Left
4846496	4846496	5/13/2014	14:03:00	CHEROKEE	HICKORY FLAT HWY	26.62	HICKORY FLAT HWY	0	0	1	0	0	Not A Collision with Motor Vehicle	On Roadway	Over Turn	Daylight	Other	South	Negotiating A Curve
4873432	4873432	6/10/2014	17:09:00	CHEROKEE	E CHEROKEE DR	5.78	HICKORY FLAT HWY	0	0	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight
4894444	4894444	7/1/2014	13:50:00	CHEROKEE	EAST CHEROKEE DR	0	HICKORY FLAT HWY	0	200	North	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	West	Turning Left
4901342	4901342	7/8/2014	17:23:00	CHEROKEE	E CHEROKEE DR	6.02	HICKORY FLAT HWY	0	0	0	0	0	Sideswipe-Same Direction	On Roadway	Motor Vehicle in Motion	Daylight	Dry	South	Changing Lanes
4932560	4932560	8/9/2014	17:00:00	CHEROKEE	HICKORY FLAT HWY	23.79	HICKORY FLAT HWY	0	0	0	0	0	Sideswipe-Opposite Direction	Off Roadway	Motor Vehicle in Motion	Dark-Lighted	Wet	East	Entering/Leaving Parking
4986693	4986693	9/20/2014	16:32:00	CHEROKEE	E CHEROKEE DR	22.05	HICKORY FLAT HWY	0	0	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight
4987128	4987128	9/21/2014	12:28:00	CHEROKEE	EAST CHEROKEE DR	6.06	HICKORY FLAT HWY	0	415	North	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	West	Turning Left
5008017	5008017	10/6/2014	11:33:00	CHEROKEE	EAST CHEROKEE DR	6.01	HICKORY FLAT HWY	0	-1	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	South	Straight
5013738	5013738	10/9/2014	16:53:00	CHEROKEE	EAST CHEROKEE DR	0	HICKORY FLAT HWY	0	1056	South	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	East	Straight
5053121	5053121	11/17/2014	6:30:00	CHEROKEE	E CHEROKEE DR	5.98	HICKORY FLAT HWY	0	0	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Dark-Not Lighted	Dry	None	Straight
5067231	5067231	11/28/2014	17:36:00	CHEROKEE	E CHEROKEE DR	5.89	HICKORY FLAT HWY	0	0	0	0	0	Not A Collision with Motor Vehicle	On Roadway	Other - Fixed Object	Dark-Not Lighted	Wet	South	Straight
5097340	5097340	12/16/2014	14:46:00	CHEROKEE	E CHEROKEE DR	6.01	HICKORY FLAT HWY	0	0	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Dusk	Dry	South	Straight
5117154	5117154	1/4/2015	12:49:00	CHEROKEE	E CHEROKEE DR	0	HICKORY FLAT HWY	0	0	North	0	0	0	On Roadway	Parked Motor Vehicle	Daylight	Dry	West	Turning Left
5181164	5181164	2/17/2015	15:00:00	CHEROKEE	E CHEROKEE DR	5.99	HICKORY FLAT HWY	0	0	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Wet	North	Backing
5241041	5241041	4/3/2015	21:20:00	CHEROKEE	E CHEROKEE DR	6	HICKORY FLAT HWY	0	0	0	0	0	0	On Roadway	Motor Vehicle in Motion	Dark-Lighted	Dry	South	Turning Right
5245424	5245424	4/7/2015	8:50:00	CHEROKEE	E CHEROKEE DR	5.98	HICKORY FLAT HWY	0	0	1	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight
5245739	5245739	4/7/2015	12:05:00	CHEROKEE	E CHEROKEE DR	22.06	HICKORY FLAT HWY	0	0	1	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Entering/Leaving Parking
5323284	5323284	6/13/2015	19:07:00	CHEROKEE	E CHEROKEE DR	6.03	HICKORY FLAT HWY	0	0	0	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	East	Turning Left
5349562	5349562	7/8/2015	9:53:00	CHEROKEE	E CHEROKEE DR	6.04	HICKORY FLAT HWY	0	0	3	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	East	Turning Right
5352026	5352026	7/10/2015	12:57:00	CHEROKEE	BATESVILLE RD	22.76	HICKORY FLAT HWY	0	0	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	South	Backing
5360223	5360223	7/17/2015	17:58:00	CHEROKEE	E CHEROKEE DR	5.8	HICKORY FLAT HWY	0	0	0	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Passing
5369397	5369397	7/26/2015	12:59:00	CHEROKEE	EAST CHEROKEE DR	0	HICKORY FLAT HWY	0	200	South	1	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight
5411136	5411136	9/1/2015	19:05:00	CHEROKEE	E CHEROKEE DR	6.05	HICKORY FLAT HWY	0	0	0	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	East	Turning Left
5412958	5412958	9/2/2015	16:12:00	CHEROKEE	E CHEROKEE DR	5.98	HICKORY FLAT HWY	0	0	0	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	Northw	Turning Left
5419321	5419321	9/10/2015	18:23:00	CHEROKEE	EAST CHEROKEE DR	0	HICKORY FLAT HWY	0	350	North	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Passing
5427991	5427991	9/17/2015	18:55:00	CHEROKEE	E CHEROKEE DR	5.88	HICKORY FLAT HWY	0	0	North	0	0	0	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Turning Left
5459370	5459370	10/6/2015	16:14:00	CHEROKEE	E CHEROKEE DR	5.95	HICKORY FLAT HWY	0	0	0	0	0	Sideswipe-Same Direction	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight
5490587	5490587	10/30/2015	15:48:00	CHEROKEE	E CHEROKEE DR	5.71	HICKORY FLAT HWY	0	0	5	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight
5546219	5546219	12/11/2015	15:53:00	CHEROKEE	E CHEROKEE DR	0	HICKORY FLAT HWY	0	0	0	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	North	Straight

## **Linear Regression of Daily Traffic**

Location	Growth Rate	R Squared	Station ID	Route	2008	2009	2010	2011	2012	2013	2014	2015
SR 140 E of E. Chero	0.6%	0.01	570110	14000	16,280	16,500	12,500	12,250	14,520	14,430	15,600	16,800
SR 140 W of E.Chero	3.3%	0.87	570108	14000	12,160	12,000	11,890	13,650	13,410	14,090	14,100	14,900
E.Chero Dr N SR 140	3.2%	0.51	570169	76500	7,320	7,330	6,150	8,390	8,260	8,440	8,440	8,540
E.Chero Dr S SR 140	-0.2%	0.03	570167	76500	9,870	9,480	9,750	9,520	9,360	9,300	9,300	10,000






















Weighted Average 1.6% 0.41 Sum of Count Stations = 45,630 45,310 40,290 43,810 45,550 46,260 47,440 50,240



## **Existing Intersection Analysis (HCM)**






















HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Existing AM  
9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	538	187	53	301	58	120	173	27	187	265	36
Future Volume (veh/h)	79	538	187	53	301	58	120	173	27	187	265	36
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1873	1900	1827	1845	1863	1900	1884	1900	1900	1861	1900
Adj Flow Rate, veh/h	96	585	228	76	327	0	145	204	30	237	294	40
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.82	0.92	0.82	0.70	0.92	0.81	0.83	0.85	0.90	0.79	0.90	0.90
Percent Heavy Veh, %	1	2	2	4	3	2	0	1	1	0	2	2
Cap, veh/h	567	645	251	201	924	793	201	228	34	283	283	39
Arrive On Green	0.06	0.50	0.50	0.05	0.50	0.00	0.08	0.14	0.14	0.12	0.18	0.18
Sat Flow, veh/h	1792	1284	501	1740	1845	1583	1810	1606	236	1810	1604	218
Grp Volume(v), veh/h	96	0	813	76	327	0	145	0	234	237	0	334
Grp Sat Flow(s),veh/h/ln	1792	0	1785	1740	1845	1583	1810	0	1842	1810	0	1822
Q Serve(g_s), s	3.5	0.0	58.6	2.9	15.2	0.0	9.5	0.0	17.6	15.7	0.0	24.9
Cycle Q Clear(g_c), s	3.5	0.0	58.6	2.9	15.2	0.0	9.5	0.0	17.6	15.7	0.0	24.9
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	567	0	896	201	924	793	201	0	262	283	0	322
V/C Ratio(X)	0.17	0.00	0.91	0.38	0.35	0.00	0.72	0.00	0.89	0.84	0.00	1.04
Avail Cap(c_a), veh/h	626	0	896	262	924	793	263	0	320	283	0	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	32.0	28.3	21.3	0.0	47.4	0.0	59.4	45.5	0.0	58.0
Incr Delay (d2), s/veh	0.2	0.0	14.5	1.7	1.1	0.0	6.6	0.0	22.7	19.2	0.0	60.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	0.0	41.6	2.7	12.6	0.0	8.8	0.0	16.0	14.3	0.0	32.1
LnGrp Delay(d),s/veh	15.8	0.0	46.6	30.0	22.4	0.0	54.0	0.0	82.1	64.7	0.0	118.3
LnGrp LOS	B		D	C	C		D		F	E		F
Approach Vol, veh/h		909			403			379			571	
Approach Delay, s/veh		43.3			23.8			71.3			96.1	
Approach LOS		D			C			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.3	77.0	23.0	26.5	14.1	77.2	18.1	31.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	70.5	16.5	24.5	12.5	70.5	16.5	24.5				
Max Q Clear Time (g_c+I1), s	5.5	17.2	17.7	19.6	4.9	60.6	11.5	26.9				
Green Ext Time (p_c), s	0.2	18.8	0.0	0.4	0.1	6.8	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			57.9									
HCM 2010 LOS			E									

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Existing PM  
9/27/2016






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	366	112	64	632	85	164	309	17	172	249	80
Future Volume (veh/h)	101	366	112	64	632	85	164	309	17	172	249	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1895	1900	1900	1900	1881	1900	1900	1900	1900	1874	1900
Adj Flow Rate, veh/h	136	426	144	78	702	0	189	364	21	205	280	119
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.74	0.86	0.78	0.82	0.90	0.78	0.87	0.85	0.82	0.84	0.89	0.67
Percent Heavy Veh, %	1	0	0	0	0	1	0	0	0	0	2	2
Cap, veh/h	214	570	193	285	792	667	245	418	24	274	301	128
Arrive On Green	0.06	0.42	0.42	0.06	0.42	0.00	0.09	0.23	0.23	0.10	0.24	0.24
Sat Flow, veh/h	1792	1356	458	1810	1900	1599	1810	1779	103	1810	1249	531
Grp Volume(v), veh/h	136	0	570	78	702	0	189	0	385	205	0	399
Grp Sat Flow(s),veh/h/ln	1792	0	1814	1810	1900	1599	1810	0	1882	1810	0	1780
Q Serve(g_s), s	5.9	0.0	36.6	3.3	47.1	0.0	10.8	0.0	27.2	11.7	0.0	30.2
Cycle Q Clear(g_c), s	5.9	0.0	36.6	3.3	47.1	0.0	10.8	0.0	27.2	11.7	0.0	30.2
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.05	1.00		0.30
Lane Grp Cap(c), veh/h	214	0	763	285	792	667	245	0	442	274	0	429
V/C Ratio(X)	0.64	0.00	0.75	0.27	0.89	0.00	0.77	0.00	0.87	0.75	0.00	0.93
Avail Cap(c_a), veh/h	271	0	763	349	792	667	317	0	484	333	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	33.8	25.3	37.2	0.0	38.3	0.0	50.8	37.6	0.0	51.2
Incr Delay (d2), s/veh	4.5	0.0	6.6	0.7	13.9	0.0	8.3	0.0	14.9	7.3	0.0	24.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.7	0.0	27.1	3.0	36.5	0.0	9.9	0.0	22.5	10.5	0.0	24.7
LnGrp Delay(d),s/veh	34.8	0.0	40.3	26.0	51.1	0.0	46.6	0.0	65.7	44.9	0.0	75.9
LnGrp LOS	C		D	C	D		D		E	D		E
Approach Vol, veh/h		706			780			574			604	
Approach Delay, s/veh		39.3			48.6			59.4			65.4	
Approach LOS		D			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	64.0	20.5	38.9	14.1	64.5	19.5	39.8				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	57.5	18.5	35.5	12.5	57.5	18.5	35.5				
Max Q Clear Time (g_c+I1), s	7.9	49.1	13.7	29.2	5.3	38.6	12.8	32.2				
Green Ext Time (p_c), s	0.2	6.2	0.3	1.7	0.1	11.9	0.3	1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			52.3									
HCM 2010 LOS			D									

## **“Open Year 2018” Intersection Analysis (HCM)**

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Open Year 2018 No-Build AM






















9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	554	193	55	310	60	124	178	28	193	273	37
Future Volume (veh/h)	81	554	193	55	310	60	124	178	28	193	273	37
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1872	1900	1827	1845	1863	1900	1884	1900	1900	1861	1900
Adj Flow Rate, veh/h	99	602	214	79	337	0	149	209	31	244	303	41
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.82	0.92	0.90	0.70	0.92	0.81	0.83	0.85	0.90	0.79	0.90	0.90
Percent Heavy Veh, %	1	2	2	4	3	2	0	1	1	0	2	2
Cap, veh/h	504	597	212	154	831	713	234	270	40	332	337	46
Arrive On Green	0.06	0.45	0.45	0.06	0.45	0.00	0.08	0.17	0.17	0.13	0.21	0.21
Sat Flow, veh/h	1792	1320	469	1740	1845	1583	1810	1604	238	1810	1605	217
Grp Volume(v), veh/h	99	0	816	79	337	0	149	0	240	244	0	344
Grp Sat Flow(s),veh/h/ln	1792	0	1790	1740	1845	1583	1810	0	1842	1810	0	1822
Q Serve(g_s), s	3.8	0.0	59.7	3.1	16.2	0.0	8.9	0.0	16.5	14.4	0.0	24.3
Cycle Q Clear(g_c), s	3.8	0.0	59.7	3.1	16.2	0.0	8.9	0.0	16.5	14.4	0.0	24.3
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	504	0	809	154	831	713	234	0	310	332	0	383
V/C Ratio(X)	0.20	0.00	1.01	0.51	0.41	0.00	0.64	0.00	0.77	0.73	0.00	0.90
Avail Cap(c_a), veh/h	527	0	809	219	831	713	349	0	495	372	0	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	36.2	30.2	24.4	0.0	41.8	0.0	52.6	38.7	0.0	50.8
Incr Delay (d2), s/veh	0.3	0.0	33.8	3.7	1.5	0.0	2.9	0.0	4.2	6.5	0.0	16.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.0	66.7	2.9	13.4	0.0	8.1	0.0	13.6	12.3	0.0	20.1
LnGrp Delay(d),s/veh	18.2	0.0	70.0	33.9	25.9	0.0	44.7	0.0	56.7	45.2	0.0	67.2
LnGrp LOS	B		F	C	C		D		E	D		E
Approach Vol, veh/h		915			416			389			588	
Approach Delay, s/veh		64.4			27.4			52.1			58.1	
Approach LOS		E			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.3	66.0	23.1	28.7	14.1	66.2	17.6	34.3				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	9.5	59.5	19.5	35.5	12.5	56.5	19.5	35.5				
Max Q Clear Time (g_c+I1), s	5.8	18.2	16.4	18.5	5.1	61.7	10.9	26.3				
Green Ext Time (p_c), s	0.1	17.4	0.2	1.9	0.1	0.0	0.3	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			54.0									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Open Year 2018 No-Build PM

























9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	377	115	66	651	88	169	318	18	177	257	82
Future Volume (veh/h)	104	377	115	66	651	88	169	318	18	177	257	82
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1895	1900	1900	1900	1881	1900	1900	1900	1900	1872	1900
Adj Flow Rate, veh/h	141	438	147	80	723	0	192	374	22	211	289	100
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.74	0.86	0.78	0.82	0.90	0.78	0.88	0.85	0.82	0.84	0.89	0.82
Percent Heavy Veh, %	1	0	0	0	0	1	0	0	0	0	2	2
Cap, veh/h	191	552	185	263	764	643	263	414	24	275	321	111
Arrive On Green	0.06	0.41	0.41	0.06	0.40	0.00	0.10	0.23	0.23	0.11	0.24	0.24
Sat Flow, veh/h	1792	1359	456	1810	1900	1599	1810	1777	105	1810	1331	460
Grp Volume(v), veh/h	141	0	585	80	723	0	192	0	396	211	0	389
Grp Sat Flow(s),veh/h/ln	1792	0	1815	1810	1900	1599	1810	0	1882	1810	0	1791
Q Serve(g_s), s	6.0	0.0	37.3	3.3	48.4	0.0	10.5	0.0	27.0	11.5	0.0	27.8
Cycle Q Clear(g_c), s	6.0	0.0	37.3	3.3	48.4	0.0	10.5	0.0	27.0	11.5	0.0	27.8
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.06	1.00		0.26
Lane Grp Cap(c), veh/h	191	0	738	263	764	643	263	0	439	275	0	432
V/C Ratio(X)	0.74	0.00	0.79	0.30	0.95	0.00	0.73	0.00	0.90	0.77	0.00	0.90
Avail Cap(c_a), veh/h	223	0	738	303	764	643	427	0	512	419	0	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	34.3	25.8	38.0	0.0	36.3	0.0	49.2	36.0	0.0	48.5
Incr Delay (d2), s/veh	11.9	0.0	8.6	0.9	21.7	0.0	3.9	0.0	17.6	4.6	0.0	18.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.4	0.0	27.9	3.0	38.9	0.0	9.4	0.0	22.8	10.1	0.0	22.5
LnGrp Delay(d),s/veh	42.8	0.0	42.9	26.7	59.8	0.0	40.2	0.0	66.7	40.5	0.0	67.2
LnGrp LOS	D		D	C	E		D		E	D		E
Approach Vol, veh/h		726			803			588			600	
Approach Delay, s/veh		42.8			56.5			58.1			57.8	
Approach LOS		D			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	59.6	20.5	37.3	14.1	60.2	19.4	38.3				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	10.5	53.1	24.5	35.9	10.5	53.1	24.9	35.5				
Max Q Clear Time (g_c+I1), s	8.0	50.4	13.5	29.0	5.3	39.3	12.5	29.8				
Green Ext Time (p_c), s	0.1	2.2	0.5	1.8	0.1	9.7	0.5	1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.5									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Open Year 2018 Build AM

























9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	554	193	55	310	60	124	178	28	193	273	37
Future Volume (veh/h)	81	554	193	55	310	60	124	178	28	193	273	37
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1863	1900	1827	1845	1863	1900	1881	1900	1900	1863	1845
Adj Flow Rate, veh/h	98	602	0	67	337	0	149	209	0	241	300	0
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.83	0.92	0.79	0.82	0.92	0.82	0.83	0.85	0.82	0.80	0.91	0.85
Percent Heavy Veh, %	1	2	0	4	3	2	0	1	0	0	2	3
Cap, veh/h	477	756	655	281	737	632	267	273	234	356	352	296
Arrive On Green	0.07	0.41	0.00	0.07	0.40	0.00	0.09	0.15	0.00	0.13	0.19	0.00
Sat Flow, veh/h	1792	1863	1615	1740	1845	1583	1810	1881	1615	1810	1863	1568
Grp Volume(v), veh/h	98	602	0	67	337	0	149	209	0	241	300	0
Grp Sat Flow(s),veh/h/ln	1792	1863	1615	1740	1845	1583	1810	1881	1615	1810	1863	1568
Q Serve(g_s), s	3.2	29.5	0.0	2.2	14.0	0.0	7.1	11.1	0.0	11.5	16.2	0.0
Cycle Q Clear(g_c), s	3.2	29.5	0.0	2.2	14.0	0.0	7.1	11.1	0.0	11.5	16.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	477	756	655	281	737	632	267	273	234	356	352	296
V/C Ratio(X)	0.21	0.80	0.00	0.24	0.46	0.00	0.56	0.77	0.00	0.68	0.85	0.00
Avail Cap(c_a), veh/h	563	1084	939	376	1073	921	428	588	505	437	582	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.4	27.1	0.0	19.8	23.0	0.0	34.0	42.7	0.0	31.9	40.8	0.0
Incr Delay (d2), s/veh	0.3	5.6	0.0	0.6	1.2	0.0	1.8	4.5	0.0	3.1	6.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	22.8	0.0	2.0	11.8	0.0	6.6	10.1	0.0	10.0	13.9	0.0
LnGrp Delay(d),s/veh	16.7	32.7	0.0	20.5	24.2	0.0	35.8	47.2	0.0	35.0	47.2	0.0
LnGrp LOS	B	C		C	C		D	D		D	D	
Approach Vol, veh/h		700			404			358			541	
Approach Delay, s/veh		30.5			23.6			42.4			41.8	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	48.0	20.4	21.6	13.3	48.7	15.8	26.2				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	60.5	18.5	32.5	12.5	60.5	18.5	32.5				
Max Q Clear Time (g_c+I1), s	5.2	16.0	13.5	13.1	4.2	31.5	9.1	18.2				
Green Ext Time (p_c), s	0.2	12.3	0.3	1.6	0.1	10.7	0.3	1.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			34.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Open Year 2018 Build PM

9/27/2016






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	377	115	66	651	88	169	318	18	177	257	82
Future Volume (veh/h)	104	377	115	66	651	88	169	318	18	177	257	82
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1900	1881	1900	1900	1881	1900	1900	1900	1900	1863	1900
Adj Flow Rate, veh/h	141	438	0	106	723	0	194	374	0	211	289	0
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.74	0.86	0.74	0.62	0.90	0.79	0.87	0.85	0.82	0.84	0.89	0.67
Percent Heavy Veh, %	1	0	1	0	0	1	0	0	0	0	2	0
Cap, veh/h	211	804	677	402	801	674	324	413	351	272	418	363
Arrive On Green	0.06	0.42	0.00	0.06	0.42	0.00	0.10	0.22	0.00	0.11	0.22	0.00
Sat Flow, veh/h	1792	1900	1599	1810	1900	1599	1810	1900	1615	1810	1863	1615
Grp Volume(v), veh/h	141	438	0	106	723	0	194	374	0	211	289	0
Grp Sat Flow(s),veh/h/ln	1792	1900	1599	1810	1900	1599	1810	1900	1615	1810	1863	1615
Q Serve(g_s), s	5.9	23.1	0.0	4.3	47.5	0.0	11.0	25.6	0.0	11.9	19.0	0.0
Cycle Q Clear(g_c), s	5.9	23.1	0.0	4.3	47.5	0.0	11.0	25.6	0.0	11.9	19.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	804	677	402	801	674	324	413	351	272	418	363
V/C Ratio(X)	0.67	0.54	0.00	0.26	0.90	0.00	0.60	0.91	0.00	0.78	0.69	0.00
Avail Cap(c_a), veh/h	270	847	713	465	847	713	382	491	417	317	481	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.8	28.9	0.0	21.4	36.1	0.0	36.4	50.9	0.0	37.5	47.5	0.0
Incr Delay (d2), s/veh	5.6	1.6	0.0	0.5	14.0	0.0	1.9	18.3	0.0	9.9	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.8	18.2	0.0	3.9	36.7	0.0	9.5	22.0	0.0	10.9	15.4	0.0
LnGrp Delay(d),s/veh	35.4	30.5	0.0	21.9	50.1	0.0	38.3	69.2	0.0	47.5	51.0	0.0
LnGrp LOS	D	C		C	D		D	E		D	D	
Approach Vol, veh/h		579			829			568			500	
Approach Delay, s/veh		31.7			46.5			58.6			49.5	
Approach LOS		C			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	62.8	20.6	35.5	14.3	63.0	19.7	36.5				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	59.5	17.5	34.5	12.5	59.5	17.5	34.5				
Max Q Clear Time (g_c+I1), s	7.9	49.5	13.9	27.6	6.3	25.1	13.0	21.0				
Green Ext Time (p_c), s	0.2	6.8	0.2	1.4	0.2	15.3	0.2	2.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			46.4									
HCM 2010 LOS			D									

## **“Design Year 2028” Intersection Analysis (HCM)**

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Design Year 2028 No-Build AM






















9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	662	231	66	371	72	148	213	33	231	326	44
Future Volume (veh/h)	97	662	231	66	371	72	148	213	33	231	326	44
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1872	1900	1827	1845	1863	1900	1884	1900	1900	1861	1900
Adj Flow Rate, veh/h	118	720	257	94	403	0	178	251	37	292	362	49
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.82	0.92	0.90	0.70	0.92	0.81	0.83	0.85	0.90	0.79	0.90	0.90
Percent Heavy Veh, %	1	2	2	4	3	2	0	1	1	0	2	2
Cap, veh/h	422	570	204	148	796	683	230	311	46	340	373	50
Arrive On Green	0.06	0.43	0.43	0.06	0.43	0.00	0.09	0.19	0.19	0.13	0.23	0.23
Sat Flow, veh/h	1792	1319	471	1740	1845	1583	1810	1605	237	1810	1605	217
Grp Volume(v), veh/h	118	0	977	94	403	0	178	0	288	292	0	411
Grp Sat Flow(s),veh/h/ln	1792	0	1789	1740	1845	1583	1810	0	1842	1810	0	1822
Q Serve(g_s), s	5.0	0.0	60.5	4.1	22.2	0.0	10.9	0.0	20.9	18.0	0.0	31.3
Cycle Q Clear(g_c), s	5.0	0.0	60.5	4.1	22.2	0.0	10.9	0.0	20.9	18.0	0.0	31.3
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	422	0	774	148	796	683	230	0	357	340	0	423
V/C Ratio(X)	0.28	0.00	1.26	0.63	0.51	0.00	0.78	0.00	0.81	0.86	0.00	0.97
Avail Cap(c_a), veh/h	481	0	774	207	798	685	299	0	428	340	0	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	39.7	32.5	28.9	0.0	42.0	0.0	53.9	39.5	0.0	53.2
Incr Delay (d2), s/veh	0.5	0.0	128.5	6.2	1.4	0.0	9.0	0.0	9.3	19.3	0.0	36.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.5	0.0	103.1	4.0	17.2	0.0	10.0	0.0	17.1	16.0	0.0	27.3
LnGrp Delay(d),s/veh	22.1	0.0	168.2	38.7	30.3	0.0	51.0	0.0	63.2	58.7	0.0	89.3
LnGrp LOS	C		F	D	C		D		E	E		F
Approach Vol, veh/h	1095			497				466			703	
Approach Delay, s/veh	152.4			31.9				58.5			76.6	
Approach LOS	F			C				E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	66.9	25.0	33.6	14.3	67.0	19.6	39.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	60.5	18.5	32.5	12.5	60.5	18.5	32.5				
Max Q Clear Time (g_c+I1), s	7.0	24.2	20.0	22.9	6.1	62.5	12.9	33.3				
Green Ext Time (p_c), s	0.2	21.4	0.0	1.9	0.2	0.0	0.2	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	95.6											
HCM 2010 LOS	F											

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Design Year 2028 No-Build PM

























9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	451	137	79	778	105	202	380	22	212	307	98
Future Volume (veh/h)	124	451	137	79	778	105	202	380	22	212	307	98
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1895	1900	1900	1900	1881	1900	1900	1900	1900	1872	1900
Adj Flow Rate, veh/h	168	524	176	96	864	0	230	447	27	252	345	120
Adj No. of Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.74	0.86	0.78	0.82	0.90	0.78	0.88	0.85	0.82	0.84	0.89	0.82
Percent Heavy Veh, %	1	0	0	0	0	1	0	0	0	0	2	2
Cap, veh/h	181	527	177	152	702	591	258	443	27	279	353	123
Arrive On Green	0.07	0.39	0.39	0.05	0.37	0.00	0.11	0.25	0.25	0.13	0.27	0.27
Sat Flow, veh/h	1792	1358	456	1810	1900	1599	1810	1774	107	1810	1329	462
Grp Volume(v), veh/h	168	0	700	96	864	0	230	0	474	252	0	465
Grp Sat Flow(s),veh/h/ln	1792	0	1815	1810	1900	1599	1810	0	1881	1810	0	1791
Q Serve(g_s), s	9.3	0.0	55.2	4.6	53.1	0.0	13.4	0.0	35.9	15.7	0.0	37.0
Cycle Q Clear(g_c), s	9.3	0.0	55.2	4.6	53.1	0.0	13.4	0.0	35.9	15.7	0.0	37.0
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.06	1.00		0.26
Lane Grp Cap(c), veh/h	181	0	705	152	702	591	258	0	470	279	0	476
V/C Ratio(X)	0.93	0.00	0.99	0.63	1.23	0.00	0.89	0.00	1.01	0.90	0.00	0.98
Avail Cap(c_a), veh/h	181	0	705	186	702	591	371	0	470	359	0	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	43.7	35.0	45.3	0.0	38.1	0.0	53.9	42.3	0.0	52.3
Incr Delay (d2), s/veh	47.0	0.0	32.3	6.5	115.8	0.0	17.2	0.0	43.6	21.7	0.0	35.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.9	0.0	43.5	4.6	90.5	0.0	12.6	0.0	43.6	17.1	0.0	30.9
LnGrp Delay(d),s/veh	87.7	0.0	76.1	41.5	161.1	0.0	55.3	0.0	97.5	64.0	0.0	87.6
LnGrp LOS	F		E	D	F		E		F	E		F
Approach Vol, veh/h	868					960		704		717		
Approach Delay, s/veh	78.3					149.1		83.7		79.3		
Approach LOS	E					F		F		E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	59.6	24.6	42.4	14.3	62.3	22.4	44.7				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	10.5	53.1	24.5	35.9	10.5	53.1	24.9	35.5				
Max Q Clear Time (g_c+I1), s	11.3	55.1	17.7	37.9	6.6	57.2	15.4	39.0				
Green Ext Time (p_c), s	0.0	0.0	0.5	0.0	0.1	0.0	0.5	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			100.6									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Design Year 2028 Build AM

























9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	662	231	66	371	72	148	213	33	231	326	44
Future Volume (veh/h)	97	662	231	66	371	72	148	213	33	231	326	44
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1863	1900	1827	1845	1863	1900	1881	1900	1900	1863	1845
Adj Flow Rate, veh/h	117	720	0	80	403	0	178	251	0	289	358	0
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.83	0.92	0.79	0.82	0.92	0.82	0.83	0.85	0.82	0.80	0.91	0.85
Percent Heavy Veh, %	1	2	0	4	3	2	0	1	0	0	2	3
Cap, veh/h	431	805	698	210	792	680	257	314	270	358	395	333
Arrive On Green	0.06	0.43	0.00	0.06	0.43	0.00	0.10	0.17	0.00	0.14	0.21	0.00
Sat Flow, veh/h	1792	1863	1615	1740	1845	1583	1810	1881	1615	1810	1863	1568
Grp Volume(v), veh/h	117	720	0	80	403	0	178	251	0	289	358	0
Grp Sat Flow(s),veh/h/ln	1792	1863	1615	1740	1845	1583	1810	1881	1615	1810	1863	1568
Q Serve(g_s), s	4.6	46.5	0.0	3.2	20.7	0.0	10.4	16.7	0.0	16.8	24.3	0.0
Cycle Q Clear(g_c), s	4.6	46.5	0.0	3.2	20.7	0.0	10.4	16.7	0.0	16.8	24.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	431	805	698	210	792	680	257	314	270	358	395	333
V/C Ratio(X)	0.27	0.89	0.00	0.38	0.51	0.00	0.69	0.80	0.00	0.81	0.91	0.00
Avail Cap(c_a), veh/h	495	868	752	276	859	737	339	471	404	358	466	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.9	34.1	0.0	27.1	27.0	0.0	40.5	52.0	0.0	37.4	49.9	0.0
Incr Delay (d2), s/veh	0.5	12.9	0.0	1.6	1.4	0.0	3.9	5.7	0.0	12.9	19.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	35.1	0.0	2.9	16.2	0.0	9.3	14.1	0.0	14.6	20.9	0.0
LnGrp Delay(d),s/veh	20.4	47.0	0.0	28.7	28.4	0.0	44.4	57.7	0.0	50.3	69.1	0.0
LnGrp LOS	C	D		C	C		D	E		D	E	
Approach Vol, veh/h		837			483			429			647	
Approach Delay, s/veh		43.3			28.5			52.2			60.7	
Approach LOS		D			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	62.3	25.0	28.2	14.1	62.6	19.2	34.1				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	60.5	18.5	32.5	12.5	60.5	18.5	32.5				
Max Q Clear Time (g_c+I1), s	6.6	22.7	18.8	18.7	5.2	48.5	12.4	26.3				
Green Ext Time (p_c), s	0.2	15.3	0.0	1.8	0.1	7.7	0.3	1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			46.6									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary  
1: E Cherokee Dr & SR 140 (Hickory Flat Hwy)

Design Year 2018 Build PM

9/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	451	137	79	778	105	202	380	22	212	307	98
Future Volume (veh/h)	124	451	137	79	778	105	202	380	22	212	307	98
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1900	1881	1900	1900	1881	1900	1900	1900	1900	1863	1900
Adj Flow Rate, veh/h	168	524	0	127	864	0	232	447	0	252	345	0
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.74	0.86	0.74	0.62	0.90	0.79	0.87	0.85	0.82	0.84	0.89	0.67
Percent Heavy Veh, %	1	0	1	0	0	1	0	0	0	0	2	0
Cap, veh/h	190	802	675	329	757	637	316	439	373	260	442	384
Arrive On Green	0.08	0.42	0.00	0.06	0.40	0.00	0.11	0.23	0.00	0.12	0.24	0.00
Sat Flow, veh/h	1792	1900	1599	1810	1900	1599	1810	1900	1615	1810	1863	1615
Grp Volume(v), veh/h	168	524	0	127	864	0	232	447	0	252	345	0
Grp Sat Flow(s),veh/h/ln	1792	1900	1599	1810	1900	1599	1810	1900	1615	1810	1863	1615
Q Serve(g_s), s	9.8	32.9	0.0	6.2	59.5	0.0	14.5	34.5	0.0	16.7	25.9	0.0
Cycle Q Clear(g_c), s	9.8	32.9	0.0	6.2	59.5	0.0	14.5	34.5	0.0	16.7	25.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	190	802	675	329	757	637	316	439	373	260	442	384
V/C Ratio(X)	0.88	0.65	0.00	0.39	1.14	0.00	0.73	1.02	0.00	0.97	0.78	0.00
Avail Cap(c_a), veh/h	198	802	675	380	757	637	328	439	373	260	442	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.0	34.4	0.0	27.3	44.9	0.0	39.8	57.4	0.0	45.3	53.3	0.0
Incr Delay (d2), s/veh	34.2	3.0	0.0	1.1	79.0	0.0	8.0	47.7	0.0	46.8	8.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.5	24.8	0.0	5.7	85.9	0.0	12.5	42.9	0.0	19.8	20.6	0.0
LnGrp Delay(d),s/veh	78.3	37.4	0.0	28.4	124.0	0.0	47.8	105.1	0.0	92.2	62.0	0.0
LnGrp LOS	E	D		C	F		D	F		F	E	
Approach Vol, veh/h		692			991			679			597	
Approach Delay, s/veh		47.3			111.7			85.5			74.7	
Approach LOS		D			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.3	66.0	24.0	41.0	14.8	69.5	23.0	42.0				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	12.5	59.5	17.5	34.5	12.5	59.5	17.5	34.5				
Max Q Clear Time (g_c+I1), s	11.8	61.5	18.7	36.5	8.2	34.9	16.5	27.9				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.2	15.8	0.1	1.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				83.2								
HCM 2010 LOS				F								

## Bowman, Glenn

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**To:** Bowman, Glenn  
**Subject:** RE: SR 140 at East Cherokee Drive - Traffic Studies

**From:** Clark, Cedric [<mailto:CClark@dot.ga.gov>]

**Sent:** Tuesday, June 28, 2016 10:40 AM

**To:** Lori M Jones <[lmjones@cherokeega.com](mailto:lmjones@cherokeega.com)>; [mwilson@maai.net](mailto:mwilson@maai.net); Ken Timpson <[ktimpson@maai.net](mailto:ktimpson@maai.net)>; Barry K Tarver <[BKTarver@cherokeega.com](mailto:BKTarver@cherokeega.com)>; Geoff Morton <[gmorton@cherokeega.com](mailto:gmorton@cherokeega.com)>

**Cc:** Busby, Jeremy <[JBusby@dot.ga.gov](mailto:JBusby@dot.ga.gov)>; Kerney, Jeanne <[jkerney@dot.ga.gov](mailto:jkerney@dot.ga.gov)>; Clark, Cedric <[CClark@dot.ga.gov](mailto:CClark@dot.ga.gov)>

**Subject:** FW: PI0013368, Cherokee, SR 140 Operational Improvement project team meeting 6.27.16

All good morning,

I would like to thank everyone for a very productive status update meeting on yesterday.

Below are the highlights from the meeting with action items:

- ❖ Brief introductions please see attached sign in sheet
- ❖ In 2003, MACTEC was the project designer
- ❖ In 2013, AMEC took over the design as MACTEC is no longer in business
- ❖ The concept report for the project will need to be placed in the NEW format and submitted for approval
- ❖ All special studies for the project have been approved except history, MA is the environmental consultant
- ❖ The project plans have been review by local PFPR and have been done in accordance with GDOT design guidelines and PPG
- ❖ NO ROW acquisition has occurred on the project to date, PPC is (19) and TPRO has been updated
- ❖ The management let date is 2/15/18; consultant plans to recover during PDP as most of the work has been done up to PFPR but must be resubmitted and approved by GDOT/ FHWA
- ❖ Project Team has set a deadline of two weeks (7/11/16) to submit the concept report to PM in NEW template for review and approval by GDOT
- ❖ Cherokee County will use a consultant already on a task order contract to acquire ROW
- ❖ The PI number shown on the plans was confirmed to be a County accounting number (This number should be removed from the revised Plans)
- ❖ We will begin L&D approval once the environmental is approved

Action items:

1. Need concept report in NEW format – Geoff Morton
2. Need updated cost estimates for ROW CST, & UTL – Ken Timpson (A utility phase needs to added in TPRO)
3. Need to send PM layout and attachments to request UST Phase I investigation – Ken Timpson/ Mike Wilson
4. Need to execute LAP notification agreement – Geoff Morton
5. Need pavement design summary (PES) submit to PM for review and approval by GDOT – Ken Timpson
6. Update TPRO – PM
7. Update P6 – PM

Please let me know if there are any errors, omissions or questions regarding any of the items above.

**Thanks,**

**CEDRIC D. CLARK**

Project Manager

**GDOT | OFFICE OF PROGRAM DELIVERY  
SOUTHEASTERN ENGINEERING INC.**

600 West Peachtree Street

Suite 610

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[M] 770.312.6551

## Flexible Pavement Design Analysis

<b>PI Number</b>	0013368	<b>County(s)</b>	Cherokee
<b>Project Number</b>		<b>Design Name</b>	SR 140 Full Depth
<b>Project Description</b>	Intersection improvement of SR 140/Hickory Flat Highway @ East Cherokee Drive		

Traffic Data (AADTs are one-way)						Miscellaneous Data	
<b>Initial Design Year</b>	2018	<b>Initial AADT, VPD</b>	9,020	<b>24 Hour Truck %</b>	1.50	<b>Lanes in one direction</b>	1
<b>Final Design Year</b>	2028	<b>Final AADT, VPD</b>	10,790	<b>SU Truck %</b>	1.00	<b>Curb &amp; Gutter/Barrier</b>	Yes
		<b>Mean AADT, VPD</b>	9,905	<b>MU Truck %</b>	0.50		

Design Data					
<b>Lane Distribution Factor (%)</b>	100.00	<b>Soil Support Value</b>	2.50	<b>Single Unit ESAL</b>	0.40
<b>Terminal Serviceability Index</b>	2.50	<b>Regional Factor</b>	2.00	<b>Multiple Unit ESAL</b>	1.50
		<b>User Defined 18-KIP ESAL</b>	0.95	<b>Calculated 18-KIP ESAL</b>	0.77
<b>Non-Standard Value Comment</b>					

Design Loading (User Provided 18-KIP ESAL Factor)					
<b>Mean AADT, VPD</b>	<b>LDF (%)</b>	<b>Vehicle Type</b>	<b>Volume (%)</b>	<b>ESAL Factor</b>	<b>Daily ESAL</b>
9,905	100.00	24 Hour Truck	1.50	0.95	142
<b>Total Design Period ESALs</b>					518,300

Proposed Flexible Full Depth Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
Course 1	12.5 mm Superpave	1.50	0.4400	0.66
Course 2	19 mm Superpave	2.00	0.4400	0.88
Course 3	25 mm Superpave	1.00	0.4400	0.44
		3.00	0.3000	0.90
Course 4	Graded Aggregate Base	10.00	0.1600	1.60
<b>Required SN</b>	4.24	<b>Proposed pavement is 5.55% Overdesigned</b>		<b>Proposed SN</b> 4.48

<b>Design Remarks</b>	
-----------------------	--

Prepared By

8/25/2016 10:56 AM

Glenn Bowman, P.E., Road Design Leader

Date

Recommended By

Consultant Design Phase Leader

Date

Approved By

State Pavement Engineer

Date

9-8-2016

Cherokee County  
Geoff Morton  
1130 Bluffs Parkway  
Canton, Georgia 30114

RE: **PI# L4281**  
**SR 140 & East Cherokee Dr - Intersection Improvement**

Mr. Morton,

Attached are two (2) copies of the New Relocation Agreement between Georgia Power Company and Cherokee County for the above referenced project.

Please sign and return both copies to the address below:

Georgia Power Company  
Attn: Monica R. Kimber  
829 Jefferson Street  
BIN 39066  
Atlanta, GA 30318

After they have been executed by Georgia Power Company we will mail you a copy.

Both the total estimated cost for relocation and the Payment Amount are valid only for a period of one (1) year following the date set forth on the enclosed estimate. Further, Georgia Power will not commence any work unless, the County executes and returns the enclosed Relocation Agreement and authorizes commencement of the work. Work must commence within 6 months of the executed relocation agreement.

If you have any questions, please contact John Gay at 404-291-0622.

Sincerely,



Monica R. Kimber  
404-506-4410  
[mrkimber@southernco.com](mailto:mrkimber@southernco.com)

Attachments

## UTILITY RELOCATION AGREEMENT

PROJECT NAME: SR 140 & East Cherokee Dr - Intersection  
Improvement

PROJECT NUMBER: SPLOST & 6115 07 0006

GDOT PROJECT NUMBER: L4281

**THIS AGREEMENT** is made and entered into as of the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between **CHEROKEE COUNTY**, State of Georgia (hereinafter referred to as the "County"), and **GEORGIA POWER COMPANY** (hereinafter referred to as the "Company"). This Agreement may refer to either County or Company, or both, as a "Party" or "Parties."

### WITNESSETH:

**WHEREAS**, the County proposes under the above written Project to construct SR 140 & East Cherokee Dr - Intersection Improvement (hereinafter referred to as the "Project"); and

**WHEREAS**, due to the construction of the Project, it will become necessary for the Company to remove, relocate or make certain adjustments to the Company's existing facilities (such facilities, including but not limited to overhead and underground electric transmission, distribution and communication lines, towers, frames, poles, facilities, wires, transformers, service pedestals, apparatus, manholes, conduits, fixtures, appliances, cables, protective wires and devices all being hereinafter referred to collectively as the "Facilities" or individually as the "Facility"); and

**WHEREAS**, the Company, as hereinafter provided, may assert that it has certain property interests and rights and utilized such property interests and rights for the placement of its Facilities prior in time to County's acquisition of the road right(s)-of-way, all as involved in said Project; and

**NOW, THEREFORE**, in consideration of the promises and the mutual covenants of the Parties hereinafter set forth and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties agree as follows:

### Section 1      THE WORK

#### 1.1      Company Facilities

Company, with its regular construction or maintenance crews and personnel, at its standard schedule of wages and working hours (as may be applicable from time to time during the term of this Agreement), and working in accordance with the terms of its agreements with such employees, will remove, relocate or make adjustments to its Facilities in accordance with the scope of work and Estimate (defined below) attached hereto as Exhibit "A" and incorporated herein by reference (the "Work"). Company shall make all technical decisions concerning the Work and may elect to contract any portion of the Work.

## 1.2 Road Right-of-Way

Prior to Company commencing the Work, County will provide written assurances to Company that it has acquired the necessary new road right-of-way (including information on the property rights acquired).

## 1.3 Traffic Control

Company shall make a reasonable effort to provide signing and other traffic control measures during the Work, in accordance with PART VI of the U. S. Department of Transportation Manual on Uniform Traffic Control Devices, current edition, all at the expense of the County.

## Section 2 COSTS AND PAYMENT

### 2.1 Compensable Property Interests.

Company shall perform the Work in accordance with the estimate attached hereto as Exhibit "A" and incorporated herein by reference (the "Total Estimate"). The total amount of the Total Estimate is TWO HUNDRED EIGHTY-SIX THOUSAND, NINE HUNDRED FIFTEEN Dollars (\$286,915.00). The amount of the Total Estimate that corresponds to Company's claim that it has compensable property interests with respect to the Project (the "Reimbursement Claim") is TWO HUNDRED EIGHTY-SIX THOUSAND, NINE HUNDRED FIFTEEN Dollars (\$286,915.00), otherwise reflected as **one hundred percent (100%)** of the Total Estimate. The Reimbursement Claim is limited to: (a) the costs of removing, relocating or adjusting those Facilities which are physically in place and in conflict with the proposed construction and/or maintenance; (b) where replacement is necessary, the costs of replacement in kind, and any improvements or betterments made necessary by the proposed construction and/or maintenance; and (c) the costs incurred in acquiring additional easements or private rights-of-way, including without limitation easements for lines, access, tree trimming, guy wires, anchors and other devices, appliances and other equipment, and any and all other such easements and property rights as may be reasonably necessary for the Company's installation, operation and maintenance of its Facilities (collectively, the "Relocation Costs").

The cost of any improvements or betterments that are not made necessary by the proposed construction or maintenance shall not be subject to the percentage split contemplated above. Such costs shall be paid as follows: (a) the costs of any improvements or betterments of a Facility being made solely at Company's option (and not being made necessary by the proposed construction and/or maintenance) shall be fully paid by Company; and (b) the costs of any improvements or betterments of a Facility being made solely at County's request (and not being made necessary by the proposed construction and/or maintenance) shall be fully paid by County.

Upon completion by Company of the Work and subject to determination of Company's Prior Rights Claim in accordance with Sections 3 and 4 below, County will pay Company a sum equal to the lesser of (a) TWO HUNDRED EIGHTY-SIX THOUSAND, NINE HUNDRED FIFTEEN Dollars (\$286,915.00), otherwise reflected as **one hundred percent (100%)** of the Total Estimate and representing the aforementioned Reimbursement Claim, or (b) the

corresponding percentage of actual Relocation Costs representing Company's compensable property interests with respect to the Project. County will also pay Company for the costs of any improvements or betterments of a Facility being made solely at County's request and not being made necessary by the proposed construction and/or maintenance.

## **2.2 Progress Payments**

If Company chooses to submit invoices for progress payments, County will pay same within thirty (30) days from receipt of the invoice, subject to Verification (as defined below) thereof by the County. Upon completion of the Work, Company shall submit a final bill to County and County shall make a final payment within thirty (30) days from receipt of the final bill, subject to Verification thereof by the County.

## **2.3 Change in Scope**

In the event there is a change in the Project, including without limitation a change in scope, design, plans, service, property interests to be acquired, engineering or costs, due to either (a) events or circumstances beyond Company's reasonable control, or (b) County's request, the Parties will negotiate in good faith a mutually acceptable agreement or amendment to this Agreement, in writing, to address such change and any increase in costs above those set forth in the Estimate.

## **Section 3 DETERMINATION OF COMPENSABLE PROPERTY INTEREST**

3.1 If Company determines it has compensable property interests with respect to the Project, Company will submit a Reimbursement Claim. The Parties agree that they will in good faith share non-privileged information with each other related to the issue of prior rights for the Project. If County determines that Company's evidence is insufficient to make a determination as to Company's compensable property interests and the percentage of the Relocation Costs to be paid by Company based upon such compensable property interests, County will provide Company with a written basis for such insufficiency and request that Company provide additional information. County will make a determination as to any asserted Reimbursement Claim before the earlier of: (a) the date that is thirty (30) days after receipt of the Reimbursement Claim; and (b) the date on which Company needs to commence the Work in order to prevent a Project delay (the "Commencement Date").

3.2 In the event that a determination cannot reasonably be made prior to the Commencement Date, provided that County certifies in writing to Company that the Project is time-sensitive due to construction scheduling with the possibility of damages for delay, safety concerns, or critical funding deadlines, Company will commence the Work without a written determination having been made. In such case, the Party's rights, claims and defenses with regard to the issue of compensable property interests and prior rights will not be waived or affected in any manner. If County does not thereafter make a determination regarding the Reimbursement Claim within six (6) months from the date of County's receipt of same, the Reimbursement Claim will be deemed approved by County.

## **Section 4**      **DISPUTE RESOLUTION**

### **4.1**      **Disagreement**

If Company disagrees with County's determination with regard to the Reimbursement Claim and the Parties are unable to settle the issue through informal negotiations, then, at the request of either Party, the Parties agree to escalate the matter pursuant to Section 4.2 below.

### **4.2**      **Dispute Notice**

Except as otherwise set forth in this Agreement, any controversy or claim arising out of or relating to this Agreement, or the breach thereof, will be settled: (a) first, by good faith efforts to reach mutual agreement of the Parties; and (b) second, if mutual agreement is not reached within thirty (30) calendar days of a written request by a Party to resolve the controversy or claim (the "Dispute Notice"), each of the Parties will appoint a designated representative who has authority to settle the dispute (or who has authority to recommend to the governing body of such Party a settlement of the dispute) and who is at a higher level of management than the persons with direct responsibility for administration of this Agreement. The designated representatives will meet as often as they reasonably deem necessary in order to discuss the dispute and negotiate in good faith in an effort to resolve such dispute. The specific format for such discussions will be left to the discretion of the designated representatives, provided, however, that all reasonable requests for relevant information made by one Party to the other Party will be honored if such information is reasonably available. If within sixty (60) days after issuance of a Dispute Notice (a) the Parties are unable to resolve issues related to the dispute, or (b) County fails to approve any tentative agreement reached, the Parties agree to participate in confidential, non-binding mediation pursuant to Section 4.3 below, it being understood, however, that nothing herein will diminish or relieve either Party of its rights or obligations under this Section 4.

### **4.3**      **Mediation**

If the Parties are unable to resolve a dispute through informal negotiations or pursuant to Section 4.2, the Parties agree to participate in confidential, non-binding mediation by an impartial, third party mediator mutually agreed upon by the Parties, at a mutually convenient location. The Parties agree that a potential mediator's experience in prior rights and real estate law will be relevant factors in selecting a mediator. In the event the Parties are unable to agree on a third party mediator within ninety (90) days of issuance of the Dispute Notice, each Party shall designate a mediation representative, and the two mediator representatives shall in good faith select a third party mediator. Each Party shall be responsible for its own attorneys' fees and expenses and for providing its own information and documentation applicable to the dispute to the mediator. All other agreed upon costs of the mediation will be apportioned equally to each Party. Any dispute not resolved by negotiation, escalation or mediation may then be submitted to a court of competent jurisdiction, and either Party may invoke any remedies at law or in equity. Nothing contained herein, however, will preclude the Parties from first seeking temporary injunctive or other equitable relief. The Parties agree that any statute of limitations,

equity or other time-based periods shall be tolled as of and from the date of the Dispute Notice until a complaint, if any, is filed.

## **Section 5**      **VERIFICATION**

### **5.1**      **Material Discrepancy**

For purposes of this Section 5, “Verification” means that County has reasonably determined that there is a material discrepancy between Company’s invoiced charges and County’s calculation of charges owed, which invoiced charges are subject to a bona fide dispute; provided, however, County agrees to provide the Company with written notice, including supporting documentation, illustrating the basis for such bona fide dispute, within sixty (60) days of receipt of the invoice in dispute. Should County fail to provide such documentation within the specified time period, County must pay the disputed amount. County must pay any undisputed portion of the invoice total within thirty (30) days after its receipt of the invoice. County must pay any disputed portion of the invoice total within thirty (30) days of the date the dispute is resolved, to the extent the dispute is resolved in favor of Company.

### **5.2**      **Audit**

At any time within thirty-six (36) months after the date of final payment, County, at its sole expense, may audit the non-privileged cost records, support documentation and accounts of Company pertaining to this Project to solely assess the accuracy of the invoices submitted by Company and notify Company of any amount of any unallowable expenditure made in the final payment under this Agreement, or, if no unallowable expenditure is found, notify Company of that fact in writing. Any such audit will be conducted by representatives of County or, if applicable, the Georgia Department of Transportation or the Federal Highway Administration, after reasonable advance written notice to Company and during regular business hours at the offices of Company in a manner that does not unreasonably interfere with Company’s business activities and subject to Company’s reasonable security requirements. As a prerequisite to conducting such audit, County or, if applicable, the Georgia Department of Transportation or the Federal Highway Administration, will sign Company’s Nondisclosure Agreement. Company may redact from its records provided to County information that is confidential and irrelevant to the purposes of the audit. Company will reasonably cooperate in any such audit, providing access to Company records that are reasonably necessary to enable County to test the accuracy of the invoices to which the audit pertains, provided that County or, if applicable, the Georgia Department of Transportation or the Federal Highway Administration, may only review, but not copy, such records. If Company agrees with the audit results and does not pay any such bill within ninety (90) days of receipt of the bill from County (based on the mutually agreed upon audit results), County may set off the amount of such bill against the amounts owed Company on any then-current contract between Company and County. If, following the audit, the Parties are unable to resolve any dispute concerning the results of the audit through informal negotiation, the provisions of Sections 4.2 and 4.3 will govern the resolution of the dispute. County may not perform an audit pursuant to this Agreement more frequently than once per calendar year and may not conduct audits twice within any six (6) months.

## **Section 6**      **COUNTY AS PARTY**

County acknowledges that this Agreement is “proprietary” in nature under applicable Georgia law, as permitted by O.C.G.A. § 36-60-13(j), and not “governmental” or “legislative,” as prohibited by O.C.G.A. § 36-30-3(a). County further represents and warrants that this Agreement will comply with all applicable laws concerning County actions and approvals and execution of binding agreements. County covenants to undertake all actions necessary to bind County.

**Section 7**      **COMMENCEMENT AND TERMINATION CONDITIONS**

Company is not obligated to commence the Work until Parties agree on the removal, relocation and/or adjustment to Company’s facilities required by the Project. If County fails to authorize commencement of the Work by March 8, 2018, Company will have no obligation to begin the Work and may terminate this Agreement without penalty by providing County with notice in writing. If County fails to sign and return this Agreement to Company by September 8, 2017, any offer made by Company pursuant to the Agreement is automatically revoked and the agreement is void and of no effect.

**Section 8**      **MISCELLANEOUS PROVISIONS**

Duplicate originals of this Agreement will be executed, each of which will be deemed an original but both of which together will constitute one and the same instrument. This Agreement may be modified only by an amendment executed in writing by a duly authorized representative for each Party. This Agreement contains the entire agreement of the Parties, and all prior oral agreements are superseded and integrated into this Agreement. This Agreement will be governed by and construed in accordance with the laws of the State of Georgia. This Agreement shall accrue to the benefit of and be binding upon the successors and assigns of the Parties. The Parties agree that this Agreement shall be deemed to have been executed in Georgia.

**[SIGNATURES ON THE FOLLOWING PAGE]**

IN WITNESS WHEREOF, the Parties have executed this Contract in four (4) counterparts, each of which shall be deemed an original in the year and day first above mentioned.

**ATTEST:**

**Cherokee County, GEORGIA**

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Chairman, Board of Commissioners**

**Witness:** \_\_\_\_\_

(SEAL)

**Notary:** \_\_\_\_\_

(SEAL)

**Approved as to Form by:**

\_\_\_\_\_  
**Cherokee County Department of  
Transportation**

Recorded on the Minutes of the County Commission at Minute Book \_\_\_\_, Page \_\_\_\_.

**ATTEST:**

**GEORGIA POWER COMPANY**

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Title:** Distribution Resource Manager

**Witness:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Notary:** \_\_\_\_\_

(SEAL)

**[Give proper title of each person executing Agreement. Attach seal as required.]**

Job Estimating & Tracking System - JETS  
FACE SHEET REPORT

Georgia Power Company  
Distribution Work Order  
Type Construction: OH/UG

Date: 08-Sep-2016 12:04:33 PM



<b>Headquarters</b> : CENTRALIZED DISTR. SVCS	<b>W.O. Number</b> : GP892H12116
<b>Rep Allow</b> : No	<b>P.E.</b> : 7030 01 <b>WR#</b> :
<b>Customer</b> : CHEROKEE COUNTY DOT OH L4281	<b>Job Reference</b> : 2144810
<b>Address</b> : PI L4281 HIGHWAY 140 @ EAST CHEROKEE	<b>Job Type</b> : H-HIGHWAY RELOCATIONS OH / UD
<b>Town</b> : CANTON	<b>Type Customer</b> : DOT PROJECTS OH/UD REIMBURSIBLE & NON
<b>Home Phone</b> :	<b>Blanket</b> : No
<b>Map Number</b> : 375-1428	<b>Substation</b> : ORANGE
<b>Estimate Name</b> : TOTAL COST ESTIMATE 2016	<b>Circuit</b> : RO662
<b>Date Last Est</b> : 01-SEP-2016	<b>Charge Account</b> : H12116-GP892-300-00000
<b>Engineer</b> : GAY,JOHN C	<b>Credit Account</b> : H12116-GP892-300-99992
<b>Committed Service Date</b> : 30-JUN-2017	<b>CSS Bill Acct#</b> :

**Job Description** : Relocate facilities for Intersection Improvement

**Driving Directions** :

**Permits/Notification(s)** :

**Total Estimated External Charges Included Below:**

Billing:	Fixed	Joint Use	Out Of Ratio	Customer Contribution
	\$0	\$0	\$0	\$0
MANHOURS:	Onsite	Travel	Headquarters	Total
Company	872.01	130.85	43.59	1,046.45
Contractor	280.97	35.71	11.96	328.64
<b>Total Estimated:</b>				1,375.09

<b>Labor Multiplier :</b>	1.25	<b>Comment :</b>	DOT PROJECT				
<b>Travel :</b>	0.00	<b>HQ :</b>	0.00	<b>EOH Labor :</b>	0.00	<b>EOH Matl :</b>	0.00
Cost Summary	Plant	Transformers	Meters	Maint	Removal	Total	
Company Labor	\$34,685	\$0	\$0	\$12,857	\$18,280	\$65,822	
Contract Labor	\$55,740	\$0	\$0	\$0	\$0	\$55,740	
Company Material	\$29,300	\$0	\$0	\$0	\$0	\$29,300	
Contractor Material	\$0	\$0	\$0	\$0	\$0	\$0	
Company Equipment	\$15,955	\$0	\$0	\$5,914	\$8,409	\$30,278	
Contractor Equipment	\$10,000	\$0	\$0	\$0	\$0	\$10,000	
Engr Supv OH	\$77,210	\$0	\$0	\$0	\$14,145	\$91,355	
<b>Subtotal</b>	<b>\$222,890</b>	<b>\$0</b>	<b>\$0</b>	<b>\$18,771</b>	<b>\$40,834</b>	<b>\$282,495</b>	
<b>Blanket</b>						<b>\$4,420</b>	
<b>Salvage</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	
<b>Total</b>	<b>\$222,890</b>	<b>\$0</b>	<b>\$0</b>	<b>\$18,771</b>	<b>\$40,834</b>	<b>\$286,915</b>	
<b>Total WO Bill :</b>						<b>\$0</b>	

**Total Net Cost :** \$286,915

<b>Rate :</b>	<b>Revenue :</b> \$0	<b>Total Ratio :</b> 0.00	<b>ROE :</b> 0.00
	<b>Loc Cost :</b> \$0	<b>Local Ratio :</b> 0.00	<b>Net Present Val :</b> 0

<b>TVM Amount :</b> \$0	<b>CPS Amount :</b> \$0	<b>Sales Tax :</b> \$0	<b>Profit :</b> \$0
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**Total Bill Amount :** \$0

<b>Approvals</b>	<b>Date</b>	<b>Completed By</b>	<b>Date</b>
------------------	-------------	---------------------	-------------

**Auth :** \_\_\_\_\_

**Close :** \_\_\_\_\_

Date : 08-Sep-2016 12:06 PM

Job Ref # : 2144810

Applicant Name : CHEROKEE COUNTY DOT OH L4281

Estimate Name : TOTAL COST ESTIMATE 2016

Estimate Description : RELOCATE FACILITIES FOR INTERSECTION IMPROVEMENT

## Work Location Summary Report

## ALL LOCATIONS

Work Order # : GP892H12116

Job Address : PI L4281 HIGHWAY 140 @ EAST CHEROKEE

Page : 1



Work Function	Special Processing	Local Cost	Unit Identification	Qty	Ret Ind	Description	Contractor Name
*** Work Location : 3.00							
Description :							
INSTALL	NONE		FLAGGINGCONT1A10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID* Inst Dsgn Volt Num : 25 Rmv Dsgn Volt Num : 25 Inst Op Volt Num : 25 Rock/Swamp : N Est Co ManHour : 35.22 Est Cont ManHours : 15.01	CONTRACTOR BID
REMOVE	ABANDON		P31/OAXNC	5	Y	PRI UD CABLE-3 PH 1/0 AXN	
REMOVE	ABANDON		TN36T	5	N	TRENCHING 36 " DEEP AND PROPER BACKFILL - 30" COVER	
REMOVE	BLANKET		PL454SG	1	Y	POLE WOOD CCA 45 FT CL 4 W' SECT GND	
REMOVE	NONE		DSALBU3	1	Y	DISC SW ASSY 3-100 A LB CO, ARR & 3PHT BKT FOR 3PH POTHEAD INSTALLATION	
REMOVE	NONE		P31/OAXNC	35	Y	PRI UD CABLE-3 PH 1/0 AXN	
REMOVE	NONE		PLCUT	1	N	TOP ANY SIZE POLE TO MAKE SHORTER POLE	
REMOVE	NONE		PNT3F	1	N	PRI&NEU TANG 3 PH W/ PTP 2 PH F'GLASS BKT-SO. ELE. STANDARD (B -9445)	
REMOVE	NONE		PRS31/DCS	1	N	PRI RUSER & COLD SHRINK TERM WITHOUT CABLE - 3 PHASE	
REMOVE	NONE		SPREADPHASES3	1	N	INSTALL TEMP ARM TO SPREAD CONDUCTOR FOR RECONDUCTORING - 3 PH - - TANGENT	
TRANSFER	NONE		PN31/01/OC	200	Y	3PH PRI-NEUTRAL (3-1/0ACSR&1-1/0ACSR)	
*** Work Location : 3.01							
Description :							
INSTALL	NONE		DISTEASEMENT	2,500	Y	DISTRIBUTION EASEMENT- AMT PAID TO CUSTOMER - USE DOT Inst Dsgn Volt Num : 25 Rmv Dsgn Volt Num : 25 Inst Op Volt Num : 12 Inaccessible : Y Est Co ManHour : 116.91 Est Cont ManHours : 21.88	DOT SUPPORT
INSTALL	NONE		DSALBU3	1	Y	SUPPORT CONTRACTOR- **INVENTORY DOLLARS PAID*** DISC SW ASSY 3-100 A LB CO, ARR & 3PHT BKT FOR 3PH POTHEAD INSTALLATION	
INSTALL	NONE		EASEMENT	1	Y	AGENTS COST OF OBTAINING EASEMENT-(\$1600) - USE DOT CONTR OR CONTRACTOR BID	DOT SUPPORT
INSTALL	NONE		FLAGGINGCONT1A10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*	CONTRACTOR BID
INSTALL	NONE		OHFLAGTRAFF	10	N	OVERHEAD TRAFFIC FLAGGING ID - WHEN THERE WILL BE AN EXTRA MAN TO FLAG	
INSTALL	NONE		P31/OAXNC	80	Y	PRI UD CABLE-3 PH 1/0 AXN	
INSTALL	NONE		PL5525G	1	Y	POLE WOOD CCA 55 FT CL 2 W' SECT GND	
INSTALL	NONE		PM1	1	N	PH MARKER 1 WHITE ON RED ENAMEL	
INSTALL	NONE		PM2	1	N	PH MARKER 2 BLACK ON WHITE ENAMELED	
INSTALL	NONE		PM3	1	N	PH MARKER 3 WHITE ON BLUE ENAMELED	



REMOVE	NONE	SVCONNOH	1	N	CONNECTORS & MHR FOR OH SVC ANY SIZE *****1 PER SERVICE*****
REMOVE	NONE	TBO3737	1	Y	TRANSF BANK OPEN DELTA 120/240V 2 37.5 KVA NO TAPS CPT W/2 CO 2 LA 2 BKT-NO

## \*\*\* Work Location : 5.00

Description :

Inst Dsgn Volt Num : 25	Inst Op Volt Num : 25	Rmv Dsgn Volt Num : 25	Rmv Op Volt Num : 25	Est Co ManHour : 121.16	Est Cont ManHours : 15.01
Energized : Y	Inaccessible : Y	Rock/Swamp : N			
INSTALL	NONE	FLAGGINGCONTTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID* CONTRACTOR BID
INSTALL	NONE	OHFLAGTRAFF	10	N	OVERHEAD TRAFFIC FLAGGING ID - WHEN THERE WILL BE AN EXTRA MAN TO FLAG
INSTALL	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY
INSTALL	NONE	SPREADPHASES3NONTAN G	1	N	INST TEMP ARM TO SPREAD CONDUCTOR FOR RECONDUCTORING - 3 PH VERT & DEADEND
REMOVE	BLANKET	PL652	1	Y	POLE WOOD CCA 65 FT CLASS 2
REMOVE	NONE	G11HIG	2	N	GUY ANCH HELIX 11M W' GUARD & 1 FGLASS STRAIN INSUL
REMOVE	NONE	PC3L	1	N	PRI"C" SUSPENSION 3 PH, 336MCM & LARGER CONDUCTOR
REMOVE	NONE	PDDJUMPER3	2	N	PRI DOUBLE DEADEND 3 PH LABOR - VARIOUS CONDUCTOR
REMOVE	NONE	PDV3	2	N	PRI DEADEND VERTICAL 3 PH
REMOVE	NONE	PLCUT	1	N	TOP ANY SIZE POLE TO MAKE SHORTER POLE
REMOVE	NONE	PN31/01/0C	240	Y	3PH PRI-NEUTRAL (3-1/0ACSR&1-1/0ACSR)
REMOVE	NONE	SDD1	1	N	SEC DBL DEADEND 1 WIRE
REMOVE	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY
REMOVE	NONE	SPREADPHASES3NONTAN G	2	N	INST TEMP ARM TO SPREAD CONDUCTOR FOR RECONDUCTORING - 3 PH VERT & DEADEND
REMOVE	TRANSFER	PN33971/0C	155	Y	3PH PRI-NEUTRAL (3-397ACSR&1-1/0ACSR)

## \*\*\* Work Location : 5.01

Description :

Inst Dsgn Volt Num : 25	Inst Op Volt Num : 25	Rmv Dsgn Volt Num : 25	Rmv Op Volt Num : 25	Est Co ManHour : 142.13	Est Cont ManHours : 36.87
Energized : Y	Inaccessible : Y	Rock/Swamp : N			
INSTALL	NONE	DISTEASEMENT	2,500	Y	DISTRIBUTION EASEMENT- AMT PAID TO CUSTOMER - USE DOT SUPPORT CONTRACTOR- **INVENTORY DOLLARS PAID*** DOT SUPPORT
INSTALL	NONE	EASEMENT	1	Y	AGENTS COST OF OBTAINING EASEMENT-(\$1600) - USE DOT CONTR OR CONTRACTOR BID DOT SUPPORT
INSTALL	NONE	FLAGGINGCONTTA10	20	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID* CONTRACTOR BID
INSTALL	NONE	G11HIG	2	N	GUY ANCH HELIX 11M W' GUARD & 1 FGLASS STRAIN INSUL
INSTALL	NONE	OHFLAGTRAFF	10	N	OVERHEAD TRAFFIC FLAGGING ID - WHEN THERE WILL BE AN EXTRA MAN TO FLAG
INSTALL	NONE	PDDJUMPER3	3	N	PRI DOUBLE DEADEND 3 PH LABOR - VARIOUS CONDUCTOR
INSTALL	NONE	PDDV3B1	1	N	PRI DBL DEADEND VERT 3 PH W' 3 POST INSL
INSTALL	NONE	PL65CONC	1	Y	POLE-CONCRETE 65 FT- NO MAT DOLLARS -***** USE EXTERNAL CHARGES*****
INSTALL	NONE	PLCONCSELFPTLABOR	1	N	LABOR ONLY - TO SET SELF SUPPORTING CONC POLE. INVENTORY CONC POLE SEPARATELY



INSTALL	TRANSFER	TA25	1	Y	TRANSF ASSY 1 PH 1- 25 KVA 120/240V CPT W/CO & LA BKT & FUSE
REMOVE	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY

**\*\*\* Work Location : 7.00**

Description :

INSTALL	NONE	FLAGGINGCONTTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*	CONTRACTOR BID
INSTALL	NONE	SETUP	4	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY	
REMOVE	NONE	PL305	1	Y	POLE WOOD CCA 30 FT CLASS 5	
REMOVE	NONE	SCONNOH	1	N	CONNECTORS & MHR FOR SECONDARY CONNECTIONS -ANY SIZE	
REMOVE	NONE	SDD1	1	N	SEC DBL DEADEND 1 WIRE	
REMOVE	NONE	SETUP	4	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY	
REMOVE	TRANSFER	SVQP1/0S	80	Y	SERVICE 4 WIRE QUADRUPLX 1/0AL	

Inst Dsgn Volt Num : 25  
Energized : Y  
Inst Op Volt Num : 25  
Inaccessible : Y  
Rmv Dsgn Volt Num : 25  
Rock/Swamp : N  
Rmv Op Volt Num : 25  
Est Co ManHour : 11.77  
Est Cont ManHours : 15.01

**\*\*\* Work Location : 11.00**

Description :

INSTALL	NONE	FLAGGINGCONTTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*	CONTRACTOR BID
REMOVE	ABANDON	P31/0AXNC	5	Y	PRI UD CABLE-3 PH 1/0 AXN	
REMOVE	ABANDON	TN36T	5	N	TRENCHING 36 " DEEP AND PROPER BACKFILL - 30" COVER	
REMOVE	BLANKET	PL5033	1	Y	POLE WOOD CCA 50 FT CLASS 3 ***CCA-ET	
REMOVE	NONE	DSALBU3	1	Y	DISC SW ASSY 3-100 A LB CO, ARR & 3PHT BKT FOR 3PH POTHEAD INSTALLATION	
REMOVE	NONE	P31/0AXNC	35	Y	PRI UD CABLE-3 PH 1/0 AXN	
REMOVE	NONE	PLCUT	1	N	TOP ANY SIZE POLE TO MAKE SHORTER POLE	
REMOVE	NONE	PNT3F	1	N	PRI&NEU TANG 3 PH W/ PTP 2 PH F/GLASS BKT-SO. ELE. STANDARD (B -9445)	
REMOVE	NONE	PRS31/0CS	1	N	PRI RISER & COLD SHRINK TERM WITHOUT CABLE - 3 PHASE	
TRANSFER	NONE	PN33974/0C	200	Y	3PH PRI-NEUTRAL (3-397 ACSR&1-4/0ACSR)	

Inst Dsgn Volt Num : 25  
Energized : Y  
Inst Op Volt Num : 25  
Inaccessible : Y  
Rmv Dsgn Volt Num : 25  
Rock/Swamp : N  
Rmv Op Volt Num : 25  
Est Co ManHour : 31.63  
Est Cont ManHours : 15.01

**\*\*\* Work Location : 11.01**

Description :

INSTALL	NONE	DISTEASEMENT	2,500	Y	DISTRIBUTION EASEMENT- AMT PAID TO CUSTOMER - USE DOT SUPPORT CONTRACTOR- **INVENTORY DOLLARS PAID***	DOT SUPPORT
INSTALL	NONE	DSALBU3	1	Y	DISC SW ASSY 3-100 A LB CO, ARR & 3PHT BKT FOR 3PH POTHEAD INSTALLATION	
INSTALL	NONE	EASEMENT	1	Y	AGENTS COST OF OBTAINING EASEMENT-(\$1600) - USE DOT CONTR OR CONTRACTOR BID	DOT SUPPORT
INSTALL	NONE	FLAGGINGCONTTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*	CONTRACTOR BID
INSTALL	NONE	OHFLAGTRAFF	10	N	OVERHEAD TRAFFIC FLAGGING ID - WHEN THERE WILL BE AN EXTRA MAN TO FLAG	
INSTALL	NONE	P31/0AXNC	20	Y	PRI UD CABLE-3 PH 1/0 AXN	

Inst Dsgn Volt Num : 25  
Energized : Y  
Inst Op Volt Num : 25  
Inaccessible : Y  
Rmv Dsgn Volt Num : 25  
Rock/Swamp : N  
Rmv Op Volt Num : 25  
Est Co ManHour : 115.04  
Est Cont ManHours : 21.88



Page : 7									
REMOVE	NONE	PLCUT	1	N	TOP ANY SIZE POLE TO MAKE SHORTER POLE				
REMOVE	NONE	PNTUB3FIB8F	1	N	PRI & NEU TANGENT UNDERBUILD 3 PH W/ 8FT F'GLASS ARM (SOCC STANDARD)				
REMOVE	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY				
REMOVE	TRANSFER	DSAPKR3	1	Y	DISC SW ASSY-3 PKR'S W/ CLUSTER MOUNT BKT,LAS				
REMOVE	TRANSFER	OCR4E140NEW3UNITS	1	Y	RECLOSER-1 PH TYPE 4E 140A -THREE UNITS				
TRANSFER	NONE	PN33974/OC	195	Y	3PH PRI-NEUTRAL (3-397 ACSR&1-4/0ACSR)				
*** Work Location : 12.01									
Description :									
Inst Dsgn Volt Num : 25									
Inst Op Volt Num : 25									
Energized : Y									
Inaccessible : Y									
INSTALL	NONE	DISTEASEMENT	2,500	Y	DISTRIBUTION EASEMENT- AMT PAID TO CUSTOMER - USE DOT SUPPORT CONTRACTOR- **INVENTORY DOLLARS PAID***	Rmv Op Volt Num : 25	Est Co ManHour : 67.67	Est Cont ManHours : 19.26	DOT SUPPORT
INSTALL	NONE	EASEMENT	1	Y	AGENTS COST OF OBTAINING EASEMENT-(\$1600) - USE DOT CONTR OR CONTRACTOR BID				DOT SUPPORT
INSTALL	NONE	FLAGGINGCONTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*				CONTRACTOR BID
INSTALL	NONE	OHFLAGTRAFF	10	N	OVERHEAD TRAFFIC FLAGGING ID - WHEN THERE WILL BE AN EXTRA MAN TO FLAG				
INSTALL	NONE	PL552SG	1	Y	POLE WOOD CCA 55 FT CL 2 W' SECT GND				
INSTALL	NONE	PM1	1	N	PH MARKER 1 WHITE ON RED ENAMEL				
INSTALL	NONE	PM2	1	N	PH MARKER 2 BLACK ON WHITE ENAMELED				
INSTALL	NONE	PM3	1	N	PH MARKER 3 WHITE ON BLUE ENAMELED				
INSTALL	NONE	PNDD3FG8L	1	N	PRI DOUBLE DEAD-END 3PH W/8 FT FIBERGLAS DE ARM 350-750AL				
INSTALL	NONE	POLESTAKE	2	N	POLE STAKING BY SURVEYOR - USE DOT SUPPORT CONTRACTOR				DOT SUPPORT
INSTALL	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY				
INSTALL	TRANSFER	DSAPKR3	1	Y	DISC SW ASSY-3 PKR'S W/ CLUSTER MOUNT BKT,LAS				
INSTALL	TRANSFER	OCR4E140NEW3UNITS	1	Y	RECLOSER-1 PH TYPE 4E 140A -THREE UNITS				
REMOVE	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY				
*** Work Location : 12.10									
Description :									
Inst Dsgn Volt Num : 25									
Inst Op Volt Num : 25									
Energized : Y									
Inaccessible : Y									
Rmv Dsgn Volt Num : 25									
Rmv Op Volt Num : 25									
Est Co ManHour : 0.00									
Est Cont ManHours : 0.00									

*** Work Location : 13.00		Description :		Inst Dsgn Volt Num : 25		Inst Op Volt Num : 25		Rmv Dsgn Volt Num : 25		Rmv Op Volt Num : 25	
		Energized : Y		Inaccessible : Y				Rock/Swamp : N		Est Co ManHour : 12.47	
										Est Cont ManHours : 15.01	
										CONTRACTOR BID	
INSTALL	NONE	FLAGGINGCONTTA10		10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*					
REMOVE	NONE	G11HIG		1	N	GUY ANCH HELIX 11M W" GUARD & 1 F'GLASS STRAIN INSUL					
REMOVE	NONE	PL355G		1	Y	POLE WOOD CCA 35 FT CLASS 5 W' GROUND					
REMOVE	NONE	SD1		1	N	SEC DEADEND ONE WIRE					
REMOVE	TRANSFER	LTHPS8S2		1	Y	STREET LIGHT-SECURITY LUM-HPS 8500L 100W 120VW/2FT BKT., LAMP***NO PC***					

REMOVE	TRANSFER	SVTP2S	80	Y	SERVICE-3 WIRE TRIPLEX 2AL
TRANSFER	NONE	S2TPAC	110	Y	SEC WIRE TRIPLEX #2 ALUMINUM ALLOY

## \*\*\* Work Location : 13.01

Description :

		Inst Dsgn Volt Num : 25	Inst Op Volt Num : 25	Rmv Dsgn Volt Num : 25	Rmv Op Volt Num : 25	Est Co ManHour : 13.52	Est Cont ManHours : 19.26
		Energized : Y	Inaccessible : Y	Rock/Swamp : N			
INSTALL	NONE	DISTEASEMENT	2,500	Y	DISTRIBUTION EASEMENT- AMT PAID TO CUSTOMER - USE DOT SUPPORT CONTRACTOR- **INVENTORY DOLLARS PAID***	DOT	DOT SUPPORT
INSTALL	NONE	EASEMENT	1	Y	AGENTS COST OF OBTAINING EASEMENT-(\$1600) - USE DOT CONTR OR CONTRACTOR BID	DOT CONTR	DOT SUPPORT
INSTALL	NONE	FLAGGINGCONTTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*	CONTRACTOR BID*	CONTRACTOR BID
INSTALL	NONE	G11HIG	1	N	GUY ANCH HELIX 11M W' GUARD & 1 F'GLASS STRAIN INSUL		
INSTALL	NONE	PL355G	1	Y	POLE WOOD CCA 35 FT CLASS 5 W' GROUND		
INSTALL	NONE	POLESTAKE	2	N	POLE STAKING BY SURVEYOR - USE DOT SUPPORT CONTRACTOR	CONTRACTOR	DOT SUPPORT
INSTALL	NONE	SD1	1	N	SEC DEADEND ONE WIRE		
INSTALL	TRANSFER	LTHPS8S2	1	Y	STREET LIGHT-SECURITY LUM-HPS 8500L 100W 120VW/2FT BKT.,LAMP***NO PC***		
INSTALL	TRANSFER	SVTP2S	80	Y	SERVICE-3 WIRE TRIPLEX 2AL		

## \*\*\* Work Location : 14.00

Description :

		Inst Dsgn Volt Num : 25	Inst Op Volt Num : 25	Rmv Dsgn Volt Num : 25	Rmv Op Volt Num : 25	Est Co ManHour : 99.78	Est Cont ManHours : 15.01
		Energized : Y	Inaccessible : Y	Rock/Swamp : N			
INSTALL	NONE	FLAGGINGCONTTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*	CONTRACTOR BID*	CONTRACTOR BID
INSTALL	NONE	OHFLAGTRAFF	10	N	OVERHEAD TRAFFIC FLAGGING ID - WHEN THERE WILL BE AN EXTRA MAN TO FLAG		
INSTALL	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY		
INSTALL	NONE	SPREADPHASES3	1	N	INSTALL TEMP ARM TO SPREAD CONDUCTOR FOR RECONDUCTORING - 3 PH - - TANGENT		
REMOVE	NONE	G11HIG	1	N	GUY ANCH HELIX 11M W' GUARD & 1 F'GLASS STRAIN INSUL		
REMOVE	NONE	PL503SG	1	Y	POLE WOOD CCA 50 FT CL 3 W' SECT GND		
REMOVE	NONE	PLCUT	1	N	TOP ANY SIZE POLE TO MAKE SHORTER POLE		
REMOVE	NONE	PN33974/0C	405	Y	3PH PRI-NEUTRAL (3-397 ACSR&1-4/0ACSR)		
REMOVE	NONE	PNT3CTS	1	N	P&N TAN 3 PH W/ PTP & 2 POST BKT & CT		
REMOVE	NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY		
REMOVE	NONE	SPREADPHASES3	1	N	INSTALL TEMP ARM TO SPREAD CONDUCTOR FOR RECONDUCTORING - 3 PH - - TANGENT		
REMOVE	NONE	SR11/0	1	N	SEC RISER 1 XFMR 37.5KVA AND SMALLER-WP CU #1/0 75STR		
REMOVE	NONE	SVCONNOH	1	N	CONNECTORS & MHR FOR OH SVC ANY SIZE ***** 1 PER SERVICE*****		
REMOVE	TRANSFER	PN33974/0C	495	Y	3PH PRI-NEUTRAL (3-397 ACSR&1-4/0ACSR)		
REMOVE	TRANSFER	TA15	1	Y	TRANSF ASSY 1 PH 1- 15 KVA 120/240V CPT W/CO & LA BKT & FUSE		

Inst Dsgn Volt Num : 25	Inst Op Volt Num : 25	Rmv Dsgn Volt Num : 25	Rmv Op Volt Num : 25	Est Co ManHour : 91.35	Est Cont ManHours : 16.63
Energized : Y	Inaccessible : Y	Rock/Swamp : N			
INSTALL NONE	DISTEASEMENT	2,500	Y	DISTRIBUTION EASEMENT- AMT PAID TO CUSTOMER - USE DOT SUPPORT CONTRACTOR- **INVENTORY DOLLARS PAID***	DOT SUPPORT
INSTALL NONE	EASEMENT	1	Y	AGENTS COST OF OBTAINING EASEMENT-(\$1600) - USE DOT CONTR OR CONTRACTOR BID	DOT SUPPORT
INSTALL NONE	FLAGGINGCONTTA10	10	N	TRAFFIC FLAGGING BY CONTRACTOR * USE CONTRACTOR BID*	CONTRACTOR BID
INSTALL NONE	G11HIG	2	N	GUY ANCH HELIX 11M W' GUARD & 1 FGLASS STRAIN INSUL	
INSTALL NONE	OHFLAGTRAFF	10	N	OVERHEAD TRAFFIC FLAGGING ID - WHEN THERE WILL BE AN EXTRA MAN TO FLAG	
INSTALL NONE	PB1F	3	N	PRI BRKT FGLASS 1 PH-SES (B-9438) 2"X26" W/O PIN INSUL	
INSTALL NONE	PL52SG	1	Y	POLE WOOD CCA 55 FT CL 2 W' SECT GND	
INSTALL NONE	PM1	1	N	PH MARKER 1 WHITE ON RED ENAMEL	
INSTALL NONE	PM2	1	N	PH MARKER 2 BLACK ON WHITE ENAMELED	
INSTALL NONE	PM3	1	N	PH MARKER 3 WHITE ON BLUE ENAMELED	
INSTALL NONE	PN33974/0C	20	Y	3PH PRI-NEUTRAL (3-397 ACSR&1-4/0ACSR)	
INSTALL NONE	PPI	3	N	PRI PIN TYPE INSUL	
INSTALL NONE	PS397	3	N	OVERHEAD PRI SPICE FOR 397MCM ACSR	
INSTALL NONE	PS4/0	1	N	OVERHEAD PRI SPICE FOR #4/0 ACSR	
INSTALL NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY	
INSTALL NONE	SR1	1	N	SEC RACK 1 SPOOL	
INSTALL NONE	SR11/0	1	N	SEC RISER 1 XFMR 37.5KVA AND SMALLER-WP CU #1/0 7STR	
INSTALL NONE	ST	1	N	SEC-TANGENT FORMED WIRE TIE	
INSTALL NONE	SVCONNOH	1	N	CONNECTORS & MHR FOR OH SVC ANY SIZE ***** PER SERVICE*****	
INSTALL NONE	TG	1	N	XFMR ACCESSORY-SQUIRREL GUARD FOR HIGH SIDE BUSHING	
INSTALL TRANSFER	PN33974/0C	495	Y	3PH PRI-NEUTRAL (3-397 ACSR&1-4/0ACSR)	
INSTALL TRANSFER	TA15	1	Y	TRANSF ASSY 1 PH 1- 15 KVA 120/240V CPT W/CO & LA BKT & FUSE	
REMOVE NONE	SETUP	5	N	SET UP TIME PER POLE - FOR LARGE JOBS ONLY	

Job Estimating & Tracking  
System - JETS

Georgia Power Company  
Estimated External Charges

HQ : CENTRALIZED DISTR. SVCS  
Customer : CHEROKEE COUNTY DOT OH L4281  
Address : PI L4281 HIGHWAY 140 @ EAST CHEROKEE  
Type Customer : DOT PROJECTS OH/UD REIMBURSIBLE & NONREIMBURSIBLE  
Estimate Name : TOTAL COST ESTIMATE 2016  
Engineer : GAY,JOHN C  
Date Last Est : 01-SEP-2016  
Job Description : Relocate facilities for intersection improvement

W.O. : GP892H12116  
P.E. : 7030  
Job Reference : 2144810  
Job Type : H-HIGHWAY RELOCATIONS OH / UD  
Charge Account : 62291-MMN-DCCDTG-H12116-703001-GP892-300-00000-6DIST  
Credit Account : 62291-MMN-DCCDTG-H12116-703001-GP892-300-99992-6DIST  
Job Order :

Charge Type	Description	Contractor?	Amount	FERC	RUC	Local Cost?
EQUIPMENT	CRANE, HOLE EXCAVATION & BACKFILL FOR 2 CONCRETE POLES	YES	\$10,000.00	300	0000	NO
MATERIAL	1 - CONCRETE POLE	NO	\$20,000.00	300	0000	NO
Total	External Charges		\$30,000.00			

### **PI-L4281: SR 140 AND EAST CHEROKEE DRIVE - INTERSECTION IMPROVEMENTS**

Based on construction plans revised June 29, 2016, Land Records research for the above referenced project is complete and a thorough search has been performed utilizing Georgia Power Company's Land Information Management System (LIMS), and the Georgia Superior Court Clerks' Cooperative Authority (GSCCCA.org), Cherokee County Tax Assessors Database, and GPC Letter File 6-813. A spreadsheet showing locations appears below.

This project is located in Land Lots 253, 254 and 324 of the 15<sup>th</sup> District of Cherokee County at the intersection of Hickory Flat Highway/SR 140 and East Cherokee Drive.

### **TRANSMISSION**

No transmission facilities appear to be located with the project boundary.

### **DISTRIBUTION**

*Distribution Base Maps: 03751428, 03751430, 03781428, 03781430*

Distribution rights within the project boundary were acquired for the Canton-Orange-Freehome-Carmichael-Hickory Flat Rural Line and construction of facilities began in or around 1936. Recorded documents in subject area confirm that the Quarles family, specifically J. R. Quarles owned property in Land Lots 253, 254, 255, 256, 322, 323, and 324. To date members of the Quarles family retain ownership of various parcels within the project area including the tract of Location #7. Georgia Power Company has clear, consistent rights for the distribution locations in conflict as evidenced by the easements provided in this report.

### **ROAD RIGHT-OF-WAY**

Right of way research was not conducted, but could be made available upon request.

### **CONCLUSION**

Georgia Power's facilities are located off road right-of-way or were constructed on private property within easements obtained from affected property owners as noted below. No evidence was found that the county or state owned right of way prior to the placement of the reimbursable locations for the lines in the project area.

**Cherokee County**  
**PI #L4281**  
**SR 140 and East Cherokee Drive - Intersection Improvements**  
Last updated August 30, 2016

Work Loc. #	Reimbursable	Non- Reimbursable	COMMENTS
<b>DWG # 1</b>			
1			No conflict
2			No conflict
3	X		Off road right-of-way
<b>DWG # 2</b>			
4	X		Off road right-of-way
5	X		J. R. Quarles (PSN 52895, 1937)
6	X		To/From Loc. #13
7	X		J. R. Quarles (PSN 52895, 1937); Dorothy L. Quarles, et al. (PSN 581032, 2009)
<b>DWG # 3</b>			
8	X		To/From Loc. #5
9			No conflict
10			No conflict
<b>DWG # 4</b>			
11	X		Off road right-of-way; see J. R. Quarles (PSN 52895, 1937) for reference only
12	X		Off road right-of-way
13	X		J. R. Quarles (PSN 52895, 1937)
<b>DWG # 5</b>			
14	X		J. R. Quarles (PSN 52895, 1937)
15			No conflict



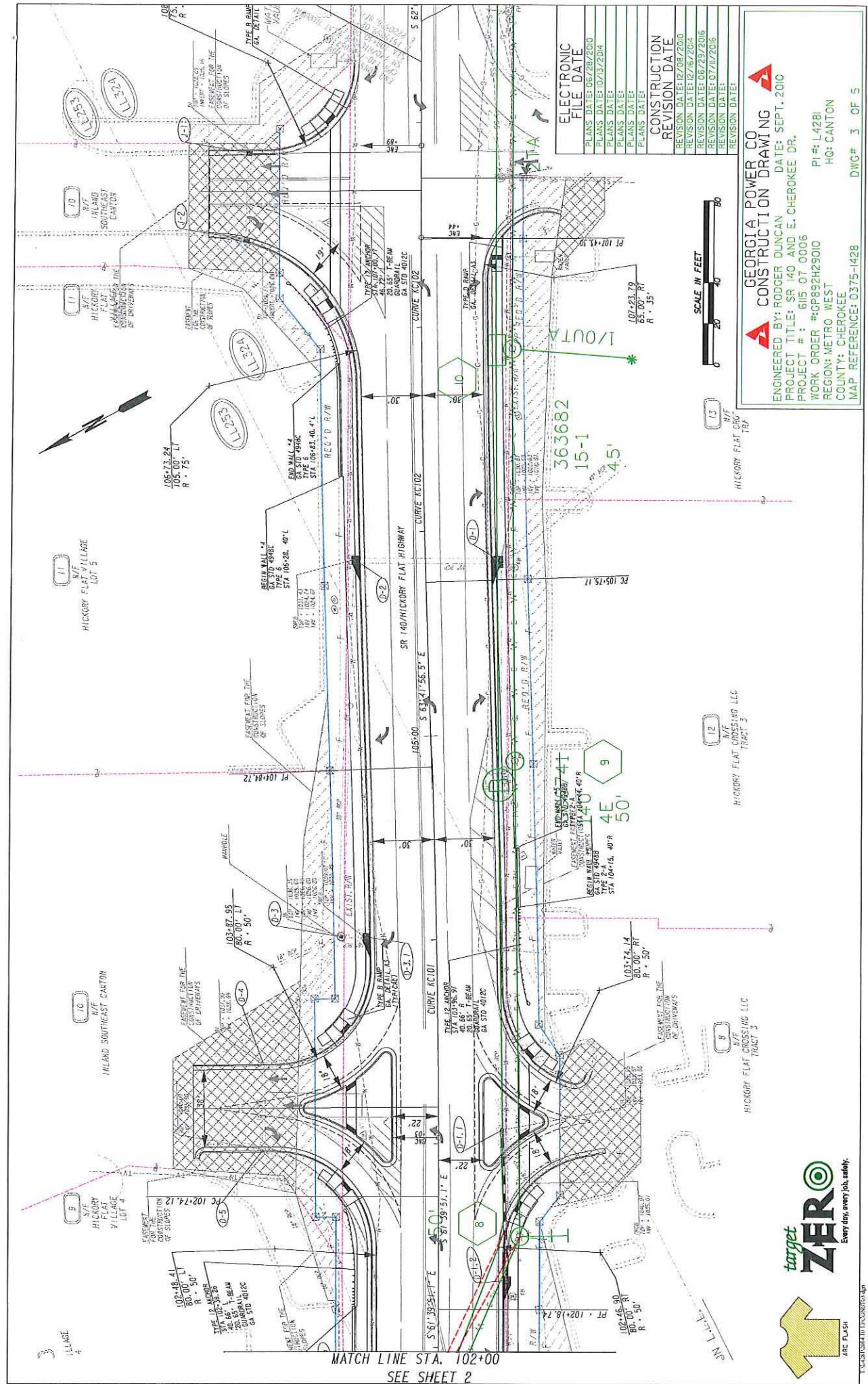


**Every day, every job, every safety.**

T 0.428 1264 0 130CONS'02.dwg

DWG# 2 OF 5

ELECTRONIC FILE DATE	
PLANS DATE:	06/28/2010
PLANS DATE:	10/13/2014
PLANS DATE:	
PLANS DATE:	
PLANS DATE:	
PLANS DATE:	
CONSTRUCTION REVISION DATE	
REVISION DATE:	12/08/2010
REVISION DATE:	11/13/2014
REVISION DATE:	12/6/2014
REVISION DATE:	06/29/2016
REVISION DATE:	07/11/2018
REVISION DATE:	08/31/2016

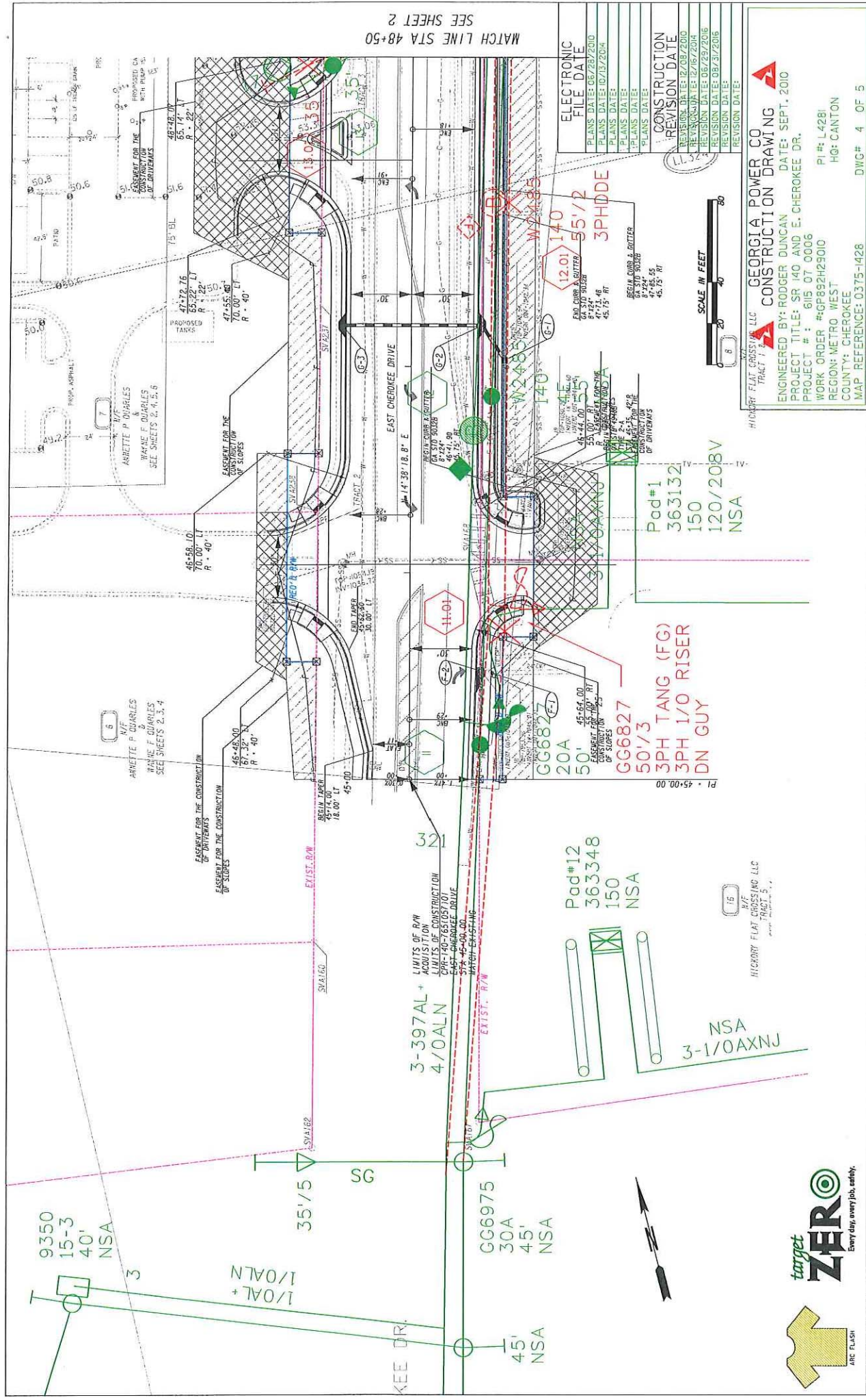


PLANS DATE	06/29/2010
PLANS DATE	10/13/2014
PLANS DATE	06/29/2016
PLANS DATE	07/11/2016
CONSTRUCTION REVISION DATE	12/08/2010
CONSTRUCTION REVISION DATE	12/16/2014
CONSTRUCTION REVISION DATE	06/29/2016
CONSTRUCTION REVISION DATE	07/11/2016

**GEORGIA POWER CO**  
**CONSTRUCTION DRAWING**  
 ENGINEERED BY: RODGER DUNCAN DATE: SEPT. 2010  
 PROJECT TITLE: SR 140 AND E. CHEROKEE DR.  
 PROJECT #: 615 07 0006  
 WORK ORDER #GP892H25010  
 REGION: METRO WEST  
 COUNTY: CHEROKEE  
 MAP REFERENCE: 0375-1428



T: 404.334.1111 FAX: 404.334.1111



MATCH LINE STA 48+50  
SEE SHEET 2

ELECTRONIC FILE DATE	
PLANS DATE:	06/23/2010
PLANS DATE:	10/17/2014
PLANS DATE:	
PLANS DATE:	
CONSTRUCTION REVISION DATE	12/08/2010
REVISION DATE:	12/08/2010
REVISION DATE:	12/16/2014
REVISION DATE:	06/29/2016
REVISION DATE:	
REVISION DATE:	

**GEORGIA POWER CO**  
CONSTRUCTION DRAWING  
ENGINEERED BY: RODGER DUNCAN DATE: SEPT. 2010  
PROJECT TITLE: SR 140 AND E. CHEROKEE DR.  
PROJECT #: 615 07 0006  
WORK ORDER #GP892H29010  
REGION: METRO WEST  
COUNTY: CHEROKEE  
MAP REFERENCE: 0375-1428  
PI #: L4281  
HQ: CANTON  
DWG# 4 OF 5



**target ZERO**  
Every day, every job, safely.

1. C:\CONSTRUCTION\DRAWING



700045

Name of Line Carroll District  
Account No. 610011-000618

## EASEMENT

BOOK 714 - PAGE 139

PSN 374979

Ref. only Loc. #3

STATE OF GEORGIA,  
CHEROKEE COUNTY.Received of GEORGIA POWER COMPANY, hereinafter called the Company, the sum of One And 1/10 Dollars (\$ 1.10), in consideration of which the undersigned, AMBER GUARNEY & WYNN GUARNEY S, whose Post Office Address is Carroll, Ga., do hereby grant and convey to said Company, its successorsand assigns, the right, privilege and easement to go by, upon, along and across that tract of land owned by the undersigned by Land Lot Number 254, 312, 313 of the 15 District, 2 Section of CHEROKEE County, State of Georgia, said lands being bounded as follows:on the North by lands of  
on the South by lands of  Hwy 140  
on the East by lands of  EAST CHEROKEE DR.  
and on the West by lands of  RICKY HOPKINS.

together with the right to construct, extend and maintain continuously upon and under said land its lines for transmitting electric current, with poles, wires, transformers, service penstocks, and other necessary apparatus, fixtures and appurtenances, including the right to attach communication wires on said poles, or under and lands with necessary appurtenances; with the right to permit the attachment of the wires and appurtenances of any other company, or person, to said poles; together with the right at all times to enter upon said premises for the purpose of inspecting said lines, making repairs, removal, alterations and extensions thereon, thereunder, thereon or therefrom together with the right to cut away and keep clear of said overhead or underground line, transmission, fixture and appurtenance, and all trees and other obstructions that may now or hereafter in any way interfere or be likely to interfere with the proper operation of said overhead or underground line, transmission, fixture and appurtenance; also the right of ingress and egress over and land to and from said lines. Any timber cut on said land by or for said company shall remain the property of the owner of said land.

The undersigned do not convey this land, but merely grant the rights, privileges and easements hereinafore set out.

Distance Line Home Hwy 140  
Road To Hwy and R/W Line  
Cut Trees 1512 since cut line  
30/42 Charge #40137  
Per p 5.00WITNESSETH, that on this 2 day of June, 1988, at Carroll, Georgia, the undersigned, Amber Guarney & Wynn Guarney S, do hereby grant and convey to said Company, its successors and assigns, the right, privilege and easement to go by, upon, along and across that tract of land owned by the undersigned by Land Lot Number 254, 312, 313 of the 15 District, 2 Section of CHEROKEE County, State of Georgia, said lands being bounded as follows:

Said Company shall not be liable for, or bound by any statement, agreement or understanding not herein expressed.

IN WITNESS WHEREOF, the said Parties have hereunto set True hand and seal, this 2 day of June, 1988.

Signed, sealed and delivered in the presence of:

W. R. L. S.

Witness

W. R. L. S.  
Notary Public

Notary Public

(This easement to be signed in the presence of two (2) witnesses, one of whom should be a Notary Public.)



Name of Line ORANGE HICKORY PLANT  
Account No. 4053221

EASEMENT

28-75

D.S. # 65267 (100)  
PSN 53638  
Ref. only Loc. #4

STATE OF GEORGIA,  
CHEROKEE COUNTY.

Received of GEORGIA POWER COMPANY, hereinafter called the Company, the sum of \$ 711.00 Dollars (\$ 100), in consideration of which the undersigned, RALPH F. QUARLES (Name), whose Post Office Address is CANTON, GA., do hereby grant and convey to said Company, its successors and assigns, the right, privilege and easement to go in, upon, along and across that tract of land owned by the undersigned in Land Lot Number 253254 of the 15th District, 7th Section of CHEROKEE County, State of Georgia, said lands being bounded as follows:  
on the North by lands of Fred Halsey Clarence DeLong  
on the South by lands of Georgia S.R. # 140  
on the East by lands of Old Avery Hickory Flat Rd. Pete Cagle  
and on the West by lands of

together with the right to construct, operate and maintain continuously upon and under said land, its lines for transmitting electric current, with poles, wires, transformers, service pedestals, and other necessary apparatus, fixtures and appliances, including the right to stretch communication wires on said poles, or under said lands with necessary appliances; with the right to permit the attachment of the wires and appliances of any other company, or person, to said poles; together with the right at all times to enter upon said premises for the purpose of inspecting said lines, making repairs, renewals, alterations and extensions thereon, thereunder, thereon or therefrom; together with the right to cut away and keep clear of said overhead or underground lines, transformers, fixtures and appliances, all trees and other obstructions that may now or hereafter in any way interfere or be likely to interfere with the proper operation of said overhead or underground lines, transformers, fixtures and appliances; also the right of ingress and egress over said land to and from said lines. Any timber cut on said land by or for said Company shall remain the property of the owner of said timber.

The undersigned does not convey any land, but merely grants the rights, privileges and easements hereinbefore set out. GEORGIA, CHEROKEE COUNTY

CHEROKEE SUPERIOR COURT

Filed in office this 3

day of Dec, 1981

at 7:30 PM, Recorded in

Deed Book 314 Page 317

This 3 day of Dec, 1981

Clarence DeLong

Said Company shall not be liable for, or bound by any statement, agreement or understanding not herein expressed.

IN WITNESS WHEREOF, the said Party has 5  
hereunto set his hand and seal, this 29th day of July, 1981.

Arthur J. 2nd (SEAL)

Signed, sealed and delivered in the presence of:

W. B. 2nd (SEAL)

William D. 2nd (SEAL)

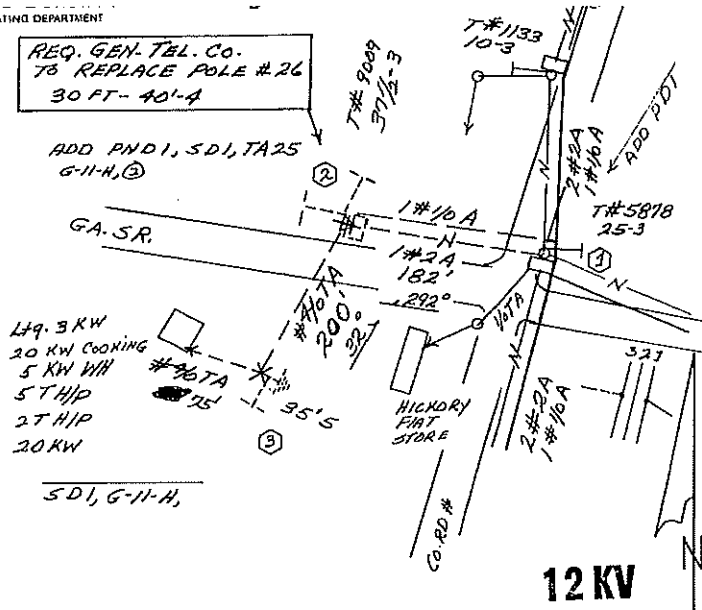
Notary Public, Georgia, State of Georgia

My Commission Expires Apr. 19, 1982

(This easement to be signed in the presence of two (2) witnesses, one of whom should be a Notary Public.)

Rec: 10-3-81

OPERATING DEPARTMENT



WE # 610011-000681

65267	4	4052-61
CASEMENT		
RALPH QUARLES		
DIVISION	DISTRICT	COUNTY
ROME	CANTON	CHEROKEE
ALLEN BENNETT-BISCUIT BARN		
ORANGE-HICKORY FLAT		
DATE	SCALE	DRAWN BY
7-11-81		W.D. HUEY
REFERENCE		APPROVED BY
61-10-A17		W.D. HUEY

70845A

Form 2-424-10M-7-23-36 Canton Orange Free Home Rural Line  
Name of Line. 6-813

SEQ. NO. 28-476

Account No. Rome Division  
R.D. 9601 to 1413-86

STATE OF GEORGIA,  
Cherokee COUNTY.

EASEMENT

Received of Georgia Power Company, hereinafter called the Company, the sum of One & No Dollars (\$ 1.00), in consideration of which

the undersigned, J.R. Quarles, whose Post Office Address is Canton, Ga., do hereby grant and convey to the said Company, its successors and

assigns, the right-of-way upon, along and across all that tract of land owned by the undersigned in Land Lot Number 324-323-322-226 of the 15th District, 2nd Section of Cherokee County, State of Georgia, said lands being bounded on the North

by lands of W.R. Lawson, on the South by lands of Clarence Bedell, on the East by lands of H.D. Thomas - R.H. Garrett, and on the West by lands of Mrs. Annie Hopkins - Mrs. D.M. Stringer;

together with the right, privilege and easement to go in and upon the said tract of land and to construct, operate and maintain perpetually upon said right-of-way its lines for transmitting electric current, with poles, wires and other necessary apparatus and appliances, including the right to stretch telephone and/or telegraph wires on said poles, with all necessary appliances, with the right to permit the attachment of the wires of any other company, or person, to said poles and appliances; together with the right at all times to enter upon said premises for the purpose of inspecting said lines, making repairs, renewals, alterations and extensions thereon, thereto or therefrom; together with the right to cut away and keep clear of said lines all trees and other obstructions that may now or hereafter in any way interfere or be likely to interfere with the proper operation of said lines. Any timber cut on said right-of-way by or for said Company shall remain the property of the owner of said timber.

PSN 52895  
Loc. #s 5, 7, 12, 13, 14  
Ref. only Loc. #11

Said Company shall not be liable for, or bound by, any statement, agreement or understanding not herein expressed.

IN WITNESS WHEREOF, the said J.R. Quarles has hereunto set his hand and seal, this 14 day of Jan, 1937.

Signed, sealed and delivered in the presence of:  
[Signature]  
[Signature]

[Signature] (SEAL)  
[Signature] (SEAL)  
[Signature] (SEAL)

DEED BOOK 4  
PAGE 423

This easement to be signed in the presence of two (2) witnesses, one of whom should be a Notary Public.

Deed Book **10779** Pg 1  
Filed and Recorded 9/9/2009 2:01:52 PM  
28-2009-029561

Patty Baker  
Clerk of Superior Court Cherokee Cty, GA

Georgia Power Company  
Attention: Connie Martin  
Land Department - Bin 10151  
241 Ralph McGill Boulevard, NE  
Atlanta, GA 30308-3374

Name of Line DAN QUARLES @ HICKORY FLAT HWY (CHEROKEE COUNTY)  
No 11370 DISTRIBUTION LINE  
Parcel No 001 Account No 69596-D02309-0-GP643-30000000  
Letter File 9-8847 Deed File 17666 Map File N/A

State of Georgia

**E A S E M E N T**

Cherokee County

Received of Georgia Power Company, hereinafter called the Company, the sum of  
Ten and 00/100 \*\*\*\*\* Dollars  
( \$ 10.00 ), and other good and valuable consideration, the receipt  
and sufficiency whereof are hereby acknowledged, in exchange for which the  
undersigned DORTHY L. QUARLES CHARITABLE REMAINDER UNITRUST, DAN R. QUARLES,  
TRUSTEE

whose Post Office Address is

488 Alexian Way, Apt 606, Signal Mountain, TN 37377

does hereby grant and convey to said Company, its successors and assigns,  
the right, privilege and easement to go in, upon along and across that tract of  
land owned by the undersigned at

6114 Hickory Flat Hwy, Canton, GA 30115

(address of property) in Land Lot 323 & 324 of the 15th Land District,  
CHEROKEE County, Georgia

Said lands being more particularly described on a plat marked  
"Exhibit A" and attached hereto and made a part hereof,

together with the right to construct, operate, and maintain continuously upon  
and under said lands, its lines for transmitting electric current, with poles,  
wires, transformers, service pedestals, and other necessary apparatus,  
fixtures, and appliances, including the right to attach communication  
facilities to said poles, to stretch communication or other lines on said  
poles, or under said lands and to attach related apparatus, fixtures, and  
appliances, with the right to permit the attachment of the cables, lines,  
wires, apparatus, fixtures, and appliances of any other company, or person, to  
said poles for electric, communications or other purposes, upon or under said  
lands with necessary appliances; with the right to assign this easement in  
whole or in part; together with the right at all times to enter upon said lands  
for the purpose of inspecting said lines, making repairs, renewals, alterations  
and extensions thereon, thereunder, thereto or therefrom; together with the  
right to cut away and keep clear of said overhead or underground lines,  
transformers, fixtures, and appliances, all trees and other obstructions that  
may in the opinion of the Company now or hereafter in any way interfere or be

Parcel 001 Name of Line DAN QUARLES & HICKORY FLAT HWY (CHEROKEE COUNTY)

likely to interfere with the proper operation of said overhead or underground lines, transformers, fixtures, and appliances; also the right of ingress and egress over the property of the undersigned to and from said lines. The rights herein granted include without limitation all the necessary rights for Company to install and maintain electrical and communication lines and facilities to existing and future structure(s) under the easement terms herein provided, on the property of the undersigned. Any timber cut on said land by or for said Company shall remain the property of the owner of said timber.

The undersigned does not convey any land, but merely grants the rights, privileges and easements hereinbefore set out.

The rights herein include and embrace the right to clear and keep clear all trees and other obstructions located within fifteen (15') feet of the distribution pole line, plus the right to install and maintain anchors and guy wires as needed in the construction and maintenance of the above mentioned distribution line.

Said Company shall not be liable for or bound by any statement, agreement or understanding not herein expressed.

IN WITNESS WHEREOF, the undersigned has hereunto set hand and seal, this 15th day of August, 2009.

Signed, sealed and delivered  
in the presence of:

Witness

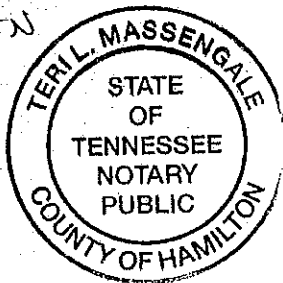
Alicia Denny

(SEAL)  
DORTHY L. QUARLES CHARITABLE REMAINDER  
UNITRUST, DAN R. QUARLES, TRUSTEE

Notary Public

Teri L. Massengale

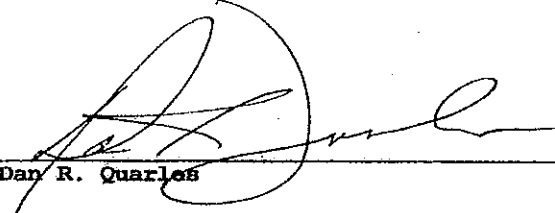
Expires 3.27.11  
Hamilton, TN



Parcel 001 Name of Line DAN QUARLES & HICKORY FLAT HWY (CHEROKEE COUNTY)

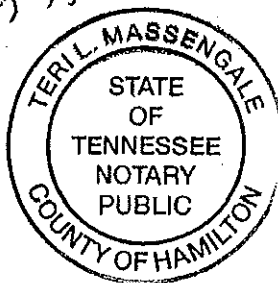
Signed, sealed and delivered  
in the presence of:

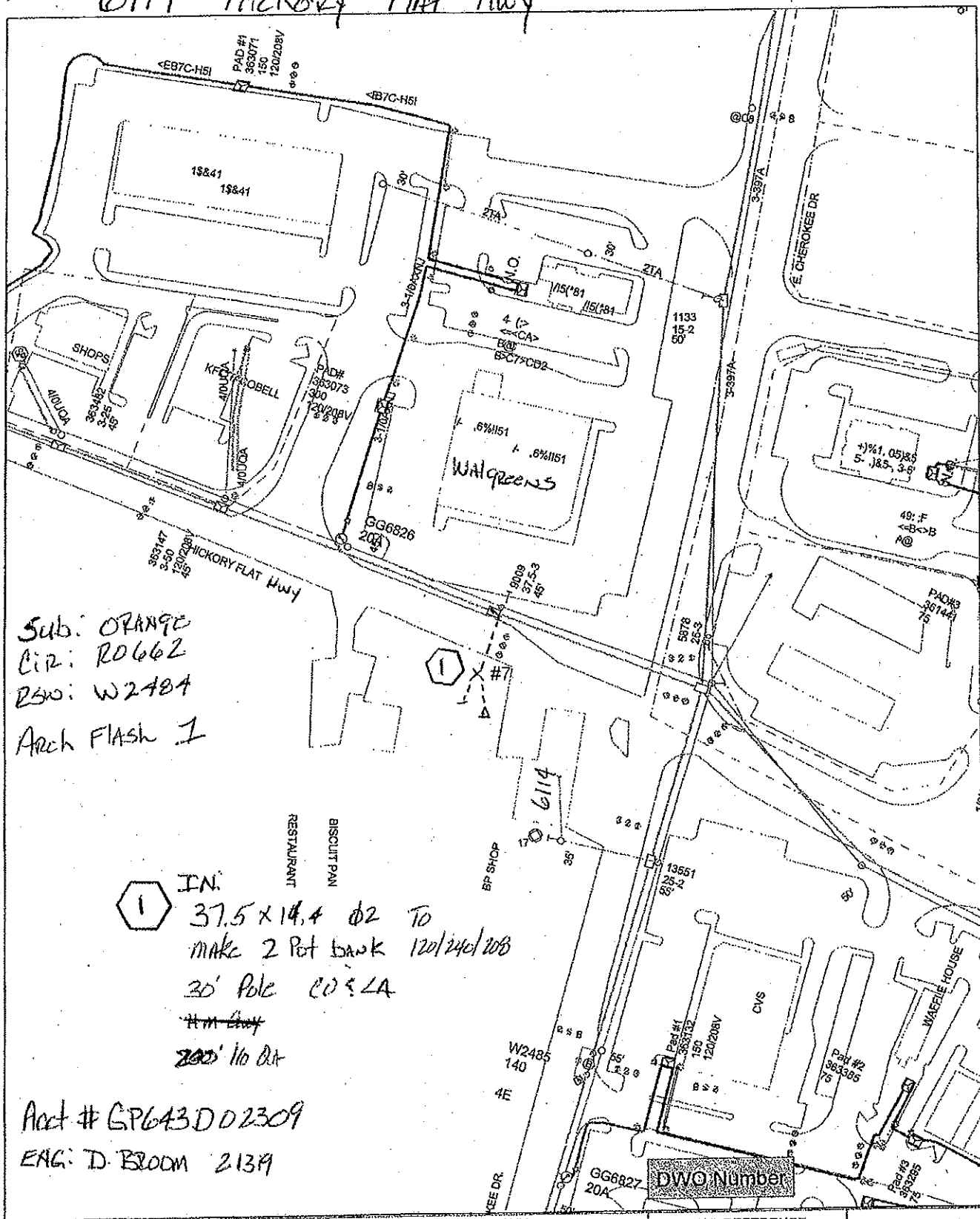
Austin J. Rinkling  
Witness

 (SEAL)  
Dan R. Quarles

Teri L. Massengale  
Notary Public

Expires 3.27.11  
Hamilton, TN

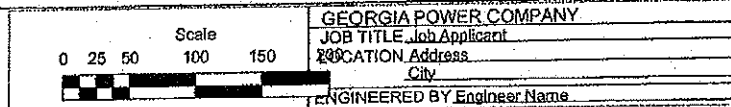




Sub: ORANGE  
Cir: RD662  
Psw: W2484  
Arch FLASH I

IN: 37.5 x 14.4  $\phi 2$  TO  
MAKE 2 Pot Bank 120/240/208  
30' Pole CO & LA  
~~HM Guy~~  
200' 1/6 dia

Acct # GP643D02309  
ENG: D. BLOOM 2139



MAP REFERENCE

Map Reference

**GEORGIA POWER**  
A SOUTHERN COMPANY